



Indoor Environment Department



**Publications
1995-2004**

Introduction

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1. Aerosols, Indoor and Outdoor

Price, P. N. "Assessing uncertainties in the relationship between inhaled particle concentration, internal deposition and health effects." Submitted as a chapter to *Aerosols Handbook: Measurement, Dosimetry and Health Effects*, CRC Press, Boca Raton, FL. 2004. LBNL-53480 .

Thatcher, Tracy L.; Lunden, Melissa M.; Revzan, Kenneth L.; Sextro, Richard G.; Brown, Nancy J. "A concentration rebound method for measuring particle penetration and deposition in the indoor environment." *Aerosol Science & Technology*, Volume 37, Pages 847-864. 2003. LBNL-51631 .

Sippola, Mark R.; Nazaroff, William W. "Particle Deposition from Turbulent Flow: Review of Published Research and Its applicability to Ventilation Ducts in Commercial Buildings." 2003. LBNL-51432 .

Sippola, Mark R. "Particle Deposition in Ventilation Ducts." 2003. LBNL-52189 .

Sippola, M.R.; Nazaroff, W.W. "Modeling particle loss in ventilation ducts." *Atmospheric Environment*, Volume 37, Pages 5597-5610. 2003. LBNL-52449 .

Sippola, M.R.; Nazaroff, W.W. "Experiments Measuring Particle Deposition from Fully Developed Turbulent Flow in Ventilation Ducts." *Aerosol Science and Technology*, Volume 38, Pages 914-925. 2003. LBNL-53585 .

Shendell, D.G.; Prill, R.; Fisk, W.J.; Apte, M.G.; Blake, D.; Faulkner, D. "Associations between classroom CO₂ concentrations and student attendance." 2003. LBNL-53586 .

Lunden, M.M.; Revzan, K. L.; Fisher, M.L.; Thatcher, T.L.; Littlejohn, D.; Hering, S.V.; Brown, N.J. "The Transformation of Outdoor Ammonium Nitrate Aerosols in the Indoor Environment." *Atmospheric Environment*, Volume 37, Pages 5633-5644. 2003. LBNL-52795 .

Lunden, M.M.; Thatcher, T.L.; Hering, S.V.; Brown, N.J. "Use of time- and chemically resolved particulate data to characterize the infiltration of outdoor PM_{2.5} into a residence in the San Joaquin Valley." *Environmental Science and Technology*, Volume 37, Pages 4724-4732. 2003. LBNL-52221 .

Fisk, W.J.; Faulkner, D.; Palonen, J.; Seppänen, O. "Performance and Costs of Particle Air Filtration in HVAC Supply Airstreams." *HPAC Engineering*, Volume 75, Pages 24-36. 2003. LBNL-53212 .

Thatcher, T.L.; Lunden, M.M.; Sextro, R.G.; Hering, S.; Brown, N.J. "The effect of penetration factor, deposition, and environmental factors on the indoor concentration of pm_{2.5} sulfate, nitrate, and carbon." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 1, Pages 846-851, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50160 .

Thatcher, T.L.; Lunden, M.; Revzan, K.; Sextro, R.G.; Brown, N. "Experimental investigation of the effect of changes in house environment on the indoor concentration of particles of outdoor origin within a residence." 2002. LBNL-51002.

Thatcher, T.L.; Lai, A.C.K.; Moreno-Jackson, R.; Sextro, R.G.; Nazaroff, W.W. "Effects of Room Furnishings and Air Speed on Particle Deposition Rates Indoors." *Atmospheric Environment*, Volume 36, Pages 1811-1819. 2002. LBNL-48414.

Sippola, M.R.; Nazaroff, W.W. "Modeling Particle Deposition In Ventilation Ducts." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 1, Pages 515-520, Indoor Air 2002, Santa Cruz, CA. 2002.

Siegel, J.A.; Nazaroff, W.W. "Modeling Particle Deposition on HVAC Heat Exchangers." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 1, Pages 521-526, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49339 .

Riley, W.J.; T.E. McKone; A.C.K. Lai; W.W. Nazaroff. "Indoor particulate matter of outdoor origin: importance of size-dependent removal mechanisms." *Environmental Science & Technology*, Volume 36, Pages 200-207. 2002. LBNL-47437 .

Mora, L.; A.J. Gadgil. "Theoretical study of pollutant mixing in rooms induced by occupancy." Proceedings of the Room Vent 2002 Conference, Copenhagen, Denmark, Pages 257-260. 2002. LBNL-49730.

Lunden, M.M.; Thatcher, T.L.; Littlejohn, D.; Fischer, M.L.; Hering, S.V.; Sextro, R.G.; Brown, N.J. "The Transformation Of Outdoor Ammonium Nitrate Aerosols In The Indoor Environment." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 5, Pages 74-79, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50158 .

Liu, D.L.; Nazaroff, W.W. "Particle Penetration Through Windows." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 862-867, Indoor Air 2002, Santa Cruz, CA. 2002. No LBNL number.

Hering, S.V.; Lunden, M.M.; Kirchstetter, T.W.; Thatcher, T.L.; Revzan, K.L.; Sextro, R.G.; Brown, N.J.; Watson, J.; Chow, J. "Indoor, Outdoor And Regional Profiles Of Pm2.5 Sulfate, Nitrate And Carbon." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 874-879, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49980 .

Fisk, WJ; Faulkner, D; Palonen, J; Seppänen, O. "Performance and cost of particle air filtration technologies." Indoor Air, Volume 12, Pages 223-234. 2002. LBNL-47833.

Fischer, M.L.; Lunden, M.M.; Thatcher, T.L.; Littlejohn, D.; Kirchstetter, T.W.; Hering, S.V.; Sextro, R.G.; Brown, N.J. "Building a predictive model of indoor concentrations of outdoor PM-2.5 for a residential research house in Clovis, California." 2002. LBNL-51001.

Fischer, M.L.; Lunden, M.M.; Thatcher, T.L.; Sextro, R.G.; Brown, N.J. "Predicting Indoor PM2.5 Of Outdoor Origin: Testing a transient size-resolved Model Using Intensive Measurements From A Residence." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 152-157, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49615.

Thatcher, T.L.; McKone, T. E.; Fisk, W. J.; Sohn, M.D.; Delp, W.W.; Riley, W.J.; Sextro, R. G. "Factors Affecting the Concentration of Outdoor Particles Indoors (COPI): Identification of Data Needs and Existing Data." 2001. LBNL-49321 .

Siegel, Jeffrey. "Fouling of HVAC fin and tube heat exchangers." 2001. LBNL-47668 .

Siegel, J.A.; Walker, I.S. "Deposition of biological aerosols on HVAC heat exchangers." 2001. LBNL-47669 .

Lunden, M.M.; Thatcher, T.L.; Littlejohn, D.; Fischer, M.L.; Kirchstetter, T.W.; Brown, N.J.; Hering, S.; Stolzenburg, M. "Building a predictive model of indoor concentrations of outdoor PM-2.5 in homes." 2001. LBNL-48929.

Lorenzetti, D.M. "Assessing Multizone Airflow Software." 2001. LBNL-47653 .

Carrie, F.R.; Modera, M.P. "Experimental investigation of aerosol deposition on slot-and joint-type leaks." Journal of Aerosol Science, Volume 33, Pages 1447-1462. 2001. LBNL-48774 .

Tsai, F.; Apte, M.G.; Daisey, J. "An Exploratory Analysis of the Relationship between Mortality and the Chemical Composition of Airborne Particulate Matter." Inhalation Toxicology, Volume 12, Pages 121-135. 2000. LBNL-43583 .

Thatcher, T.L.; Lai, A.C.K.; Moreno-Jackson, R.; Sextro, R.G.; Nazaroff, W.W. "Experimental Determination Of Size Resolved Particle Deposition Rates As A Function Of Room Furnishing And Room Air Velocity, Section 11PC." Proceedings of the 19th Annual American Association of Aerosol Research, St. Louis, MO, Pages 332, The American Association of Aerosol Research, Cincinnati, OH. 2000.

Thatcher, T.L.; Lunden, M.M.; Fischer, M.L.; Fine, J.D.; Kirchstetter, T.W.; Hering, S.; Sextro, R.G.; Brown, N.J. "A Concentration Rebound Method For Measuring Particle Penetration Into A Residence, Section 12A1." Proceedings of the 19th Annual American Association for Aerosol Research, St. Louis, MO, The American Association for Aerosol Research, Cincinnati, OH. 2000.

Lunden, M.M.; Fischer, M.L.; Fine, J.D.; Thatcher, T.L.; Kirchstetter, T.W.; Hering, S.; Sextro, R.G.; Brown, N. J. "A Predictive Model Of Indoor Concentrations Of Outdoor Pm-2.5 In Homes." Proceedings of the 19th Annual American Association of Aerosol Research, St. Louis, MO, Volume Session 1A, Pages 5, The American Association for Aerosol Research, Cincinnati, OH. 2000.

Litvak, A.; Gadgil, A.J.; Fisk, W.J. "Hygroscopic Fine Mode Particle Deposition on Electronic Circuits and Resulting Degradation of Circuit Performance: An Experimental Study." Indoor Air, Volume 10, Pages 47-56. 2000. LBNL-41315.

Fisk, W.J.; Faulkner D.; Sullivan, D.; Mendell, M.J. "Particle concentrations and sizes with normal and high efficiency filtration in a sealed air-conditioned office building." Aerosol Science & Technology, Volume 32, Pages 527-544. 2000. LBNL-43835.

Tsai, F.C.; Apte, M.G.; Daisey, J.M. "An Exploratory Analysis of the Relationship between Adverse Health Effects of Airborne Particles and Their Chemical Composition." Proceedings of the 3rd Colloquium on Particulate Air Pollution and Human Health, 6-8 June 1999, Durham, NC, Air Pollution Health Effects Laboratory, University of California, Irvine, CA. 1999.

Thatcher, T.L.; Nazaroff, W.W.; Sextro, R.G. "Determining transfer factors for outdoor aerosol plumes entering buildings." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 5, Pages 331-334, Construction Research Communications, Ltd.. 1999. LBNL-43711.

Sohn, M.D.; A. Lai; B.V. Smith; R.G. Sextro; H.E. Feustel; W.W. Nazaroff. "Modeling aerosol behavior in multizone indoor environments." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 4, Pages 785-790, Construction Research Communications, Ltd., London. 1999. LBNL-42708.

Sippola, M.R.; Nazaroff, W.W.; Thatcher, T.L. "Particle deposition from turbulent duct flow." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 2, Pages 24-29, Construction Research Communications, Ltd., London. 1999. LBNL-42710 .

Gundel, L.A.; Lane, D.A. "Sorbent-coated diffusion denuders for direct measurement of gas/particle partitioning by semi-volatile organic compounds, in Advances in Environmental, Industrial and Process Control Technologies." Gas and Particle Partition Measurements of Atmospheric Organic Compounds, Volume 2, Pages 287-332, Newark, Gordon and Breach. 1999.

Fisk, W.J.; Sullivan, D.; Mendell, M. "Particle Concentrations in an Air-Conditioned Office Building with Normal and High Efficiency Filtration." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 4, Pages 19-24, Construction Research Communications, Ltd., London. 1999. LBNL-43174.

Feustel, H.E. "COMIS – An International Multizone Air-Flow and Contaminant Transport Model." Energy and Buildings, Volume 30, Pages 3-18. 1999. LBNL-42182.

Thatcher, T.L.; Nazaroff, W.W. "Effect of Small-Scale Obstructions and Surface Textures on Particle Deposition from Natural Convection Flow." Aerosol Science and Technology, Volume 27, Pages 709-725. 1997. LBNL-41568.

Ruzer, L.S.; Sextro, R.G. "Assessment of Very Low Aerosol Concentrations by Measuring the Unattached Fraction of 218Po." Radiation Protection Dosimetry, Volume 71, Pages 135-140. 1997.

Hering, S.; Gundel, L. A.; Daisey, J. M. "A microslot impactor for organic aerosol sampling." Aerosol Science, Volume 28, Pages 1283-1290. 1997. LBNL-40411.

Thatcher, T.L.; Fairchild, W.A.; Nazaroff, W.W. "Particle Deposition from Natural Convection Enclosure Flow Onto Smooth Surfaces." Aerosol Science & Technology, Volume 25, Pages 359-374. 1996.

Thatcher, T.L.; Layton, D.W. "Deposition, Resuspension, and Penetration of Particles within a Residence." Atmospheric Environment, Volume 29, Pages 1487-1497. 1995.

Layton, D.W.; Thatcher, T.L. "Movement of Outdoor Particles to the Indoor Environment: An Analysis of the Arnhem Lead Study." Proceedings of the Air and Waste Management Association Annual Meeting, San Antonio, TX, Air and Waste Management Association, Pittsburgh, PA. 1995.

2. Commercial Building and Classroom Energy and Environmental Quality

2.1. Energy Retrofits and Diagnostics

Rainer, L.; Hoeschele, M.; Apte, M.G.; Shendell, D.G.; Fisk, W.J. "Energy savings estimates and cost benefit calculations for high performance relocatable classrooms." 2004. LBNL-54230.

Diamond, R. "An R&D guide and multiyear plan for improving energy use in existing commercial buildings." 2004. LBNL-56173.

Diamond, R.; Moezzi, M. "Changing trends: A brief history of the U.S. household consumption of energy, water, food, beverages and tobacco." Submitted to 2004 ACEEE Summer Study, Pacific Grove, CA, American Council for an Energy Efficient Economy, Washington, DC. 2004. LBNL-55011.

Apte, M G.; Hodgson, A.T; Shendel, D.G.; Rainer, L.I.; Hoeschele, M.A. "Designing Building Systems to Save Energy and Improve Indoor Environments: A Practical Demonstration." Submitted to 2004 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, American Council for an Energy Efficient Economy, Washington, DC. 2004. LBNL-54859.

Fisk, W.J.; Price, P.N.; Faulkner, D.; Sullivan, D.P.; DiBartolomeo, D.L.; Federspiel, C.; Liu, G.; Lahiff, M. "Worker productivity and ventilation rate in a call center: Analyses of time-series data for a group of registered nurses." 2003. LBNL-53785.

Diamond, Rick. 2003. "A lifestyle-based scenario for U.S. buildings: Implications for energy us." Energy Policy, Volume 31, Pages 1205-1211. 2003. LBNL-50969.

Apte, M G.; Hodgson, A.; Shendel, D.G.; Dibartolomeo, D.; Hotchi, T.; Lee, S-M; Liff, S.; Rainer, L.; Sullivan, D; Fisk, W.J. "Simultaneous Improvements in Relocatable Classrooms." ASHRAE IAQ Applications, Pages 7-10. 2003. LBNL-54870.

Apte, M.G.; Hodgson, A.T.; Shendell, D.G.; Dibartolomeo, D.; Hotchi, T.; Lee, S.M.; Liff, S.M.; Rainer, L.I.; Sullivan, D.P.; Fisk, W.J.. "Simultaneous Energy Savings and IEQ Improvements in Relocatable Classrooms." 2003. LBNL-52690.

Diamond, R.C.; M. Moezzi. "Becoming allies: Combining social science and technological perspectives to improve energy research and policy making." Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 4, Pages 89-104, American Council for an Energy Efficient Economy, Washington, DC. 2002. LBNL-50704.

Salsbury, T.I.; Diamond, R.C. "Fault Detection in HVAC Systems Using Model-Based Feedforward Control." Energy & Buildings, Volume 33, Pages 403-415. 2001. LBNL-45867.

Piette, M.A.; J.H. Eto; I.S. Walker; S. Selkowitz; C.P. Wray; B. Nordman; A. Meier; P. Haves; R. Diamond; J. Harris; M. Moezzi; C. Payne; J. Koomey. "Demand-Responsive and Efficient Building Systems as a Resource for Electricity Reliability." 2001. LBNL-47942.

Salsbury, T.I.; Diamond, R.C. "Implementation and testing of a fault detection software tool for improving control system performance in a large commercial building." Proceedings of the ACEEE 2000 Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 7, Pages 147-158, American Council for an Energy Efficient Economy, Washington, DC. 2000. LBNL-45863.

Diamond, R.C. "An Overview of the U.S. Building Sector." Chapter 6 in Indoor Air Quality Handbook, McGraw Hill, New York. 2000. LBNL-43640.

Diamond, R.C.; Salsbury, T.; Bell, G.; Huang, Y.J.; Sezgen, O.; Mazzuchi, R.; Roberger, J. "Phillip Burton Federal Building: EMCS Retrofit Analysis." 1999. LBNL-43256.

Matson, N.E.; Sartor, D.A.; Diamond, R.C. "Model Procurement Documents." 1998. LBNL-42556.

Warner, J.; Sartor, D.; Diamond, R. "Tenant Guidelines for Energy-Efficient Renovation of Buildings at the Presidio of San Francisco." 1997. PUB-798.

Diamond,R.C. "Multifamily ventilation." Home Energy, Volume 14. 1997.

Sartor, D. A.; Diamond, R. C.; Walker, A.; Giller, M.; Brown, K.; Crawley, A. S. "Designing an Environmental Showcase: The San Francisco Presidio." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 5, Pages 209-218, American Council for an Energy Efficient Economy, Washington, DC. 1996.

Hammon, R.W.; Modera M.P. "Improving the Energy Efficiency of Air Distribution Systems in New California Homes." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 2, Pages 85-95, American Council for an Energy Efficient Economy, Washington, DC. 1996. LBL-31636.

Diamond, R.C.; Remus, J.; Vincent, B. "User Satisfaction with Innovative Cooling Retrofits in Sacramento Public Housing." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 8, Pages 21, American Council for an Energy Efficient Economy, Washington, DC. 1996.

DeCicco, J.; Diamond, R. C.; Nolden, S.; Wilson, T. "Improving Energy Efficiency in Apartment Buildings." 1996.

Busch, J.; Diamond, R. C. "Does the Feebate Approach to A/E Compensation Lead to and Energy-Efficient Building?." Proceedings of the 4th National Energy-Efficient New Construction Conference, Vancouver, BC, ADM Associates, Sacramento, CA. 1996.

Tzonis, A.; Lefaivre, L.; Diamond, R. "Architecture in North America since 1960." 1995.

Piette, M. A.; Nordman, B.; Buen, O. D.; Diamond, R. C. "Findings from a Low-Energy, New Commercial-Buildings Research and Demonstration Project." Energy, Volume 20, Pages 471-482. 1995. LBL-36506.

Diamond, R.C. "An Overview of the Multifamily Sector." Home Energy, Volume 12, Pages 22-25. 1995.

Diamond, R.C.; Feustel, H.E.; Dickerhoff, D.J. "Energy and Ventilation Research in Highrise Apartments: The Chelsea Public Housing Study." Proceedings of the 15th AIVC Annual Conference, Palm Springs, CA, Air Infiltration and Ventilation Centre, Coventry, Great Britain. 1995.

2.2. Health and Productivity Effects

Shendell, D.G; Prill,R.; Fisk, W.J.; Apte, M.G.; Blake, D.; Faulkner, D. "Associations between classroom CO₂ concentrations and student attendance in Washington and Idaho." Accepted for publication in Indoor Air 2004. 2004. LBNL-54413 .

Seppanen, O.; Fisk, W.J. "Summary of human responses to ventilation." Submitted to Special Issue of Indoor Air. 2004. LBNL-55748 .

Seppanen, O.; Fisk, W.J. "A model to estimate the cost effectiveness of indoor environment improvements in office work." Submitted to ASHRAE Transactions. 2004. LBNL-55447 .

Seppanen, O.; Fisk, W.J. "Control of temperature for health and productivity in offices." Submitted to ASHRAE Transactions. 2004. LBNL-55448 .

Kim, J.J.; Svetlana, S.; Lipsett, M.; Singer, B.C.; Hodgson, A.; Ostro, B. "Traffic-related Air Pollution near Busy Road: The East Bay Children's Respiratory Health Study." American Journal of Respiratory and Critical Care Medicine, Volume 170, Pages 520526. 2004. LBNL-55586 .

Fisk, W.J.; Seppanen, O.; Faulkner, D.; Huang, J. "Economic benefits of an economizer system: energy savings and reduced sick leave." Submitted to ASHRAE Transactions 2004. 2004. LBNL-54475 .

Fedderspiel, C.C.; Fisk, W.J.; Price, P. N.; Liu, G.; Faulkner, D; DiBartolomeo, D.L.; Sullivan, D.P.; Lahiff, M. "Worker Performance and Ventilation in a Call Center: Analyses of Work Performance Data for Registered Nurses." Accepted for publication in Indoor Air. 2004. LBNL-55032 .

- Shendell, D.G.; Prill, R.; Fisk, W.J.; Apte, M.G.; Blake, D.; Faulkner, D. "Associations between classroom CO₂ concentrations and student attendance." 2003. LBNL-53586 .
- Seppänen, O.; Fisk, W.J.; Faulkner, D. "Cost benefit analysis of the night-time ventilative cooling in office building." Proceedings of the Healthy Buildings 2003 Conference, Singapore, Volume 3, Pages 394-399, Healthy Buildings 2003, Inc., Singapore. 2003. LBNL-53191 .
- Seppänen, O.; Fisk, W.J. "A conceptual model to estimate cost effectiveness of the indoor environment improvements." Proceedings of the Healthy Buildings 2003 Conference, Singapore, Volume 3, Pages 368-374, Healthy Buildings 2003, Inc., Singapore. 2003. LBNL-53193 .
- Mendell, M.J.; Heath, G.A. "Do Indoor Pollutants and Thermal Conditions in Schools Influence Student Performance? A Critical Review of the Literature." Accepted for publication in Indoor Air. 2003. LBNL-51780 .
- Mendell, MJ; Naco, GN.; Wilcox, TG.; Sieber, WK. "Environmental Risk Factors and Work-Related Lower Respiratory Symptoms in 80 Office Buildings: An Exploratory Analysis of NIOSH Data." American Journal of Industrial Medicine, Volume 43, Pages 630-641. 2003. LBNL-51761 .
- Fisk,W.J; Seppänen, O.; Faulkner, D.; Huang, J. "Economizer system cost effectiveness: Accounting for the influence of ventilation rate on sick leave." Proceedings of the Healthy Buildings 2003 Conference, Singapore, Volume 3, Pages 361-367, Healthy Buildings 2003, Inc., Singapore. 2003. LBNL-53192 .
- Erdmann, C.A.; Apte, M.G. "Associations of Indoor Carbon Dioxide Concentrations and Environmental Susceptibilities with Mucous Membrane and Lower Respiratory Building Related Symptoms in the BASE Study: Analyses of the 100 Building Dataset." Accepted for publication in Indoor Air Journal Special Edition 2003. 2003. LBNL-53842 .
- Seppänen, O.; Fisk, W.J. "Relationship of SBS-symptoms and ventilation system type in office buildings." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 3, Pages 437-442, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50046 .
- Mendell, M.J.; Naco, G.M.; Wilcox, T.G.; Sieber, W.K. "Building-related risk factors and work-related lower respiratory symptoms in 80 office building." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 103-108, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49566 .
- Mendell, M.J.; Fisk, W.J.; Petersen, M.R.; Hines, C.J.; Dong, M.; Faulkner, D.; Deddens, J.A.; Ruder, A.M.; Sullivan, D.P.; Boeniger, M.F. "Indoor Particles and Symptoms Among Office Workers: Results from a Double-Blind Cross-Over Study." Epidemiology, Volume 13, Pages 296-304. 2002. LBNL-48217 .
- Kumar, S.; Fisk, W.J. "IEQ and the impact on building occupants." ASHRAE Journal, Volume 44, Pages 50-52. 2002. LBNL-51288 .
- Kumar, S.; Fisk, W.J. "IEQ and the impact on employee sick leave." ASHRAE Journal, Volume 44, Pages 97-98. 2002. LBNL-51289 .
- Kumar, S.; Fisk, W.J. "The role of Emerging Energy-Efficient Technology in Promoting Workplace Productivity and Health: Final Report." 2002. LBNL-49706 .
- Heath, G.A.; Mendell, M.J. "Do Indoor Environments in Schools Influence Student Performance? A Review of the Literature." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 802-807, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49567 .
- Fisk, W.J.; Price, P. N.; Faulkner, D; Sullivan, D; Dibartolomeo, D.; Federspiel, C.; Liu, D.L.; Lahiff, M. "Worker Performance and ventilation: analysis of time-series data for a group of call-center workers." Proceedings of the Indoor Air 2002, Monterey, CA, Volume 1, Pages 790-795, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-51724 .
- Fisk, W.J. "How IAQ affects health, productivity." ASHRAE Journal, Volume 44, Pages 56, 58-60. 2002. LBNL-51381 .

Fisk, W.J.; M.J. Mendell. "Ventilation rates and health." ASHRAE Journal, Volume 44, Pages 56-58. 2002. LBNL-51382 .

Fedderspiel, C.C.; Liu, G.; Lahiff, M.; Faulkner, D.; Dibartolomeo, D.L.; Fisk, W.J.; Price, P.N.; Sullivan, D.P. "Worker performance and ventilation: Analyses of individual data for call-center workers." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 796-801, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50124 .

Erdmann, C.A.; Steiner, K.C.; Apte, M.G. "Indoor carbon dioxide concentrations and SBS symptoms in office buildings revisited: Analyses of the 100 building BASE Study dataset." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 3, Pages 443-448, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49584 .

Seppänen, O.; Fisk, W.J. "Association of ventilation system type with SBS symptoms in office workers." Indoor Air, Volume 12, Pages 98-112. 2001. LBNL-47457 .

Apte, M G.; Lefohn, A.S. "Letters to the Editor." Journal of the Air and Waste Management Association, Volume 50, Pages 322. 2001.

Wyon, D.; Fisk, W.J.; Rautio, S. "Research needs and approaches pertaining to the indoor climate and productivity." Healthy Buildings 2000, Volume 2, Pages 327-332, SIY Indoor Air Information. 2000. LBNL-48219 .

Seppanen, O.; Fisk, B. "Association of ventilation rates with health and other responses in commercial and institutional buildings." Healthy Buildings 2000 Conference, Volume Workshop Summaries, Pages 1-8, SIY Indoor Air Information, Oy Helsinki, Finland. 2000. LBNL-48246 .

Fisk, W.J. "Review of health and productivity gains from better IEQ." Healthy Buildings 2000, Volume 4, Pages 23-24, SIY Indoor Air Information. 2000. LBNL-48218 .

Fisk, W.J. "Health and productivity gains from better indoor environments and their relationship with building energy efficiency." Annual Review of Energy and the Environment, Volume 25, Pages 537-566. 2000. LBNL-45484 .

Fisk, W.J. "Estimates of potential nationwide productivity and health benefits from better indoor environments: An update." Chapter 4 in Indoor Air Quality Handbook, McGraw Hill, New York. 2000. LBNL-42123 .

Apte, M.; Fisk, W.; Daisey, J. "Indoor carbon dioxide concentrations and SBS in office workers." Proceedings of the Healthy Buildings 2000 Conference, Helsinki, Finland, Volume 1, Pages 133-138, SIY Indoor Air Information, Oy, Helsinki, Finland. 2000. LBNL-45019 .

Apte, M.; Fisk, B.; Daisey, J. "Associations between Indoor CO₂ Concentrations and Sick Building Syndrome Symptoms in US Office Buildings: An Analysis of the 1994-1996 BASE Study Data." Indoor Air, Volume 10, Pages 246-257. 2000. LBNL-44385 .

Seppänen, O.A.; Fisk, W.J.; Mendell, M.J. "Association of ventilation rates and CO₂ -concentrations with health and other responses in commercial and institutional buildings." Indoor Air, Volume 9, Pages 226-252. 1999. LBNL-43334 .

Mendell, M. J.; Fisk, W. J.; Petersen, M.; Hines, C. J.; Faulkner, D.; Deddens, J. A.; Dong, M. X.; Ruder, A. M.; Sullivan, D.; Boeniger, M. F. "Effects on Occupants of Enhanced Particle Filtration in a Non-Problem Office Environment: A Double-Blind Crossover Intervention Study." The American Journal of Industrial Medicine, Volume Supp 1, Pages 55-57. 1999. LBNL-42221.

Apte, M.G. "VOCs and "Sick Building Syndrome": Application of a New Statistical Approach for SBS Research to U.S. EPA BASE Study Data." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 1, Pages 117-112, Construction Research Communications, Ltd., London. 1999. LBNL-42698 .

Fisk, W.J.; A.H. Rosenfeld. "Potential Nationwide Improvements in Productivity and Health from Better Indoor Environments." Proceedings of the 1998 ACEEE Summer Study on Energy and Efficiency in Buildings, Pacific Grove, CA, Volume 8, Pages 85-97, American Council for an Energy Efficient Economy, Washington, DC. 1998. LBNL-41849.

Fisk, W.J.; Rosenfeld, A.H. "The indoor environment – productivity and health – and \$\$\$." Planning for Energy and the Environment, Volume 17, Pages 53-57. 1998.

Fisk, W.J.; D. Faulkner; D. Sullivan; M. Dong; C. Dabrowski, Jr.; J.J. Thomas; M.J. Mendell; C.J. Hines; A. Ruder; M. Boeniger. "The healthy building intervention study: Objectives, methods and results of Selected Environment Measurements." 1998. LBNL-41546.

Fisk, W.J.; Rosenfeld, A.H. "Estimates of Improved Productivity and Health from Better Indoor Environments." Indoor Air, Volume 7, Pages 158-172. 1997. LBNL-39596.

Mendell, MJ; Fisk, WJ; Deddens, JA; Seavey, WG; Smith AH; Smith DF; Hodgson, AT; Daisey JM; Goldman L. "Elevated symptom prevalence associated with ventilation type in office buildings: findings from the California Healthy Building Study." Epidemiology, Volume 7, Pages 583-589. 1996. LBNL-42555.

Ten Brinke, J. "Development of New VOC Exposure Metrics and their Relationship to "Sick Building Syndrome" Symptoms." Environmental Health Sciences, School of Public Health, Pages 223, University of California, Berkeley. 1995. LBNL-37652.

2.3. Indoor Environmental Quality

Apte, M G.; Hodgson, A.T; Shendel, D.G.; Rainer, L.I.; Hoeschele, M.A. "Designing Building Systems to Save Energy and Improve Indoor Environments: A Practical Demonstration." Submitted to 2004 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, American Council for an Energy Efficient Economy, Washington, DC. 2004. LBNL-54859 .

Shendell, D.G. "Assessment of organic compound exposures, thermal comfort parameters, and HVAC system-driven air exchange rates in public school portable classrooms in California." 2003. LBNL-53804 .

Daisey, J.; Apte, M G.; Angell, W.J. "Indoor air quality, ventilation and health symptoms in schools: An analysis of existing information." Indoor Air, Volume 13, Pages 53-64. 2003. LBNL-48287 .

Apte, M G.; Hodgson, A.; Shendel, D.G.; Dibartolomeo, D.; Hotchi, T.; Lee, S-M; Liff, S.; Rainer, L.; Sullivan, D; Fisk, W.J. "Simultaneous Improvements in Relocatable Classrooms." ASHRAE IAQ Applications, Pages 7-10. 2003. LBNL-54870 .

Apte, M.G.; Hodgson, A.T.; Shendell, D.G.; Dibartolomeo, D.; Hotchi, T.; Lee, S.M.; Liff, S.M.; Rainer, L.I.; Sullivan, D.P.; Fisk, W.J.. "Simultaneous Energy Savings and IEQ Improvements in Relocatable Classrooms." 2003. LBNL-52690 .

IED Staff. "A compilation of papers for the Indoor Air 2002 Conference in memory of Joan M. Daisey." 2002. LBNL-50419 .

Shendell, DG; Lee, S-M; Apte, MG; DiBartolomeo, DB; Sullivan, DP; Liff, SM; Fisk, WJ; Rainer, LI. "Assessment of Noise Exposures in New Relocatable Classrooms with Standard and Advanced HVAC Systems." Epidemiology, Volume 13, Pages S223. 2002. Abstract (no LBNL number).

Shendell, D.G.; DiBartolomeo, D.; Fisk, W.J.; Hodgson, A.T.; Hotchi, T.; Lee, S. M.; Sullivan, D.P.; Apte, M.G.; Rainer, L.I. "Final methodology for a field study of indoor environmental quality and energy efficiency in new relocatable classrooms in Northern California." 2002. LBNL-51101 .

Shendell, D.G.; Apte, M.G.; Kim, J.; Smorodinsky, S. "Building effective partnerships to conduct school indoor environmental quality assessments and interventions." 2002. LBNL-50377 .

Fisk, W.J.; Faulkner, D; Sullivan, D; Delp, W. "Measuring rates of outdoor airflow into HVAC systems." 2002. LBNL-51583 .

Fisk, W.J.; Brager, G.; Brook, M.; Burge, H.; Cole, J.; Cummings, J.; Levin, H.; Loftness, V.; Logee, T.; Mendell, M.J.; Persily, A.; Taylor, S.; Zhang, J. "A priority agenda for energy-related indoor environmental quality research." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 2, Pages 984-989, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50612 .

Apte, M.; Hodgson, A.; Shendell, D.; Dibartolomeo, D.; Hotchi, T.; Kumar, S.; Lee, S.M.; Liff, S.; Rainer, L.; Schmidt, R.; Sullivan, D.; Diamond, R.; Fisk, W.J. "Energy and indoor environmental quality in relocatable classrooms." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 2, Pages 62-69, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49581 .

Shendell, D.G.; M.G. Apte; D. DiBartolomeo; W. J. Fisk; A.T. Hodgson; S. Kumar; D.P. Sullivan; L.I. Rainer. "Linking Energy Efficiency and Indoor Environmental Quality to Provide Thermal Comfort and Reduce Children's Exposure to Volatile Organic Compounds: Demonstration Project in New Relocatable Classrooms at Northern California Public Schools." Proceedings of the 11th Annual Meeting of the International Society for Exposure Analysis, Charleston, SC, Pages 148, International Society for Exposure Analysis, Boston, MA. 2001.

Shendell, D.G.; Apte, M.G.; Corsi, R.; Jenkins, M.P.; Kim, J.; Smorodinsky, S.; Torres, V.; J.M. Waldman. "Studying the Public School Environment and Classroom Indoor Air Quality: Community-based Exposure Assessments Through Public-Private-Government Partnerships, Examples from CA and TX." 2001.

Apte, M.G.; Fisk, W.J.; Hodgson, A.T.; Russell, M.; Shendell. D.G. "California Demonstration Energy Efficiency-Indoor Environmental Quality Project: Predicted Relocatable Classroom Indoor Air Quality due to Low-Emitting Interior Materials and Enhanced Ventilation." Proceedings of the 11th Annual Meeting of the International Society of Exposure Analysis, Charleston, SC, International Society for Exposure Analysis, Boston, MA. 2001.

IED Staff. "Recent Research on Indoor Air Quality: A Compilation in Memory of Joan Daisey." 2000. LBNL-45463.

Fisk, W.J.; Faulkner D.; Sullivan, D.; Mendell, M.J. "Particle concentrations and sizes with normal and high efficiency filtration in a sealed air-conditioned office building." Aerosol Science & Technology, Volume 32, Pages 527-544. 2000. LBNL-43835.

Hines, C.J.; Milton, D.K.; Larsson, L.; Petersen, M.R.; Fisk, W.J.; Mendell, M.J. "Characterization of endotoxin and 3-hydroxy fatty acids in an office building." Indoor Air, Volume 10, Pages 2-12. 1999.

Daisey, J. "Indoor Air Quality, Ventilation and Health Symptoms in Schools: An Analysis of Existing Information." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 2, Pages 1-6, Construction Research Communications, Ltd., London. 1999.

Apte, M.G.; Hammond, S.K.; Gundel, L.A.; Cox, D. "A New Carbon Monoxide Occupational Dosimeter: Results from a Worker Exposure Assessment Survey." Journal of Exposure Analysis and Environmental Epidemiology, Volume 9, Pages 546-559. 1999. LBNL-43832.

Faulkner, D.; W.J. Fisk; A.J. Gadgil; D.P. Sullivan. "Demonstration and Field Test of air jacket technology." 1998. LBNL-42099.

Daisey, J.M.; Angell, W.J. "Survey and Critical Review of the Literature on Indoor Air Quality, Ventilation and Health Symptoms in Schools." 1998. LBNL-41517.

2.4. Thermal Distribution Systems (Ducts)

Walker, I.S.; Sherman, M.; Dickerhoff, D. "Reducing Uncertainty for the DeltaQ Duct Leakage Test." Submitted to Performance of Exterior Envelopes of Whole Buildings IX International Conference, Clearwater Beach, FL, ASHRAE, Atlanta, GA. 2004. LBNL-53549 .

Diamond, R.C.; Wray, C.P.; Smith, B.V.; Dickerhoff, D.J.; Matson, N.E.; Cox, S.A. "A prototype data archive for the pier "thermal distribution systems in commercial buildings" project." 2004. LBNL-54191 .

- Wray, Craig P.; Matson, Nance E. "Duct Leakage Impacts on VAV System Performance in Large Commercial Buildings." 2003. LBNL-53605 .
- Wray, Craig P. "Duct Thermal Performance Models for Large Commercial Buildings." 2003. LBNL-53410 .
- Diamond, R.C.; Wray, C.P.; Dickerhoff, D.J.; Matson, N.E.; Wang, D. "Thermal distribution systems in commercial buildings." 2003. LBNL-51860 .
- Xu, T.T.; Carrie, F.R.; Dickerhoff, D.J.; Fisk, W.J.; McWilliams, J.; Wang, D.; Modera, M.P. "Performance of thermal distribution systems in large commercial buildings." Energy and Buildings, Volume 34, Pages 215-226. 2002. LBNL-44331 .
- Sherman, M.H.; Xu, T.T.; Abushakra, B.; Dickerhoff, D.J.; Wang, D.M.; Wray, C.P.; Modera, M.P. "Thermal Distribution System Characteristics and Energy Impacts of Duct Leaks in Light Commercial Buildings." 2002. LBNL-49470 .
- Carrie, F. R.; Levinson, R.; Xu, T. T.; Dickerhoff, D. J.; Fisk, W. J.; McWilliams, J.; Modera, M. P.; Wang, D. "Laboratory and field testing of an aerosol-based duct-sealing technology for large commercial buildings." ASHRAE Transactions. 2002. LBNL-44220 .
- Modera, M.P; Brzozowski, O; Carrie, F.R; Dickerhoff, D.J; Delp, W.W; Fisk, W.J; Levinson, R; Wang, D. "Sealing Ducts in Large Commercial Buildings with Aerosolized Sealant Particles." Energy & Buildings, Volume 34, Pages 705-714. 2001. LBNL-42414 .
- Carrie, F.R.; Modera, M.P. "Experimental investigation of aerosol deposition on slot-and joint-type leaks." Journal of Aerosol Science, Volume 33, Pages 1447-1462. 2001. LBNL-48774 .
- Xu, T. "Commercial Thermal Distribution Systems: Final Report for CIEE/CEC." 2000. LBNL-45080 .
- Xu, T. "Performance Diagnostics of Thermal Distribution Systems in Light Commercial Buildings: Final Report for CIEE/CEC." Proceedings of the ACEEE 2000 Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 3, Pages 383-394, American Council for an Energy Efficient Economy, Washington, DC. 2000. LBNL-45080 .
- Levinson, R.M.; Delp, W.W.; Dickerhoff, D.J.; Modera, M.P. "Effects of air infiltration on the effective thermal conductivity of internal fiberglass insulation and on the delivery of thermal capacity via ducts." 2000. LBNL-42499 .
- Levinson, R.; Delp, W.; Dickerhoff, D.; Modera, M. "Effects of Airflow Infiltration on the Thermal Performance of Internally-insulated Ducts." Energy & Buildings, Volume 32, Pages 345-354. 2000. LBNL-45447 .
- Fisk, W.J.; Delp, W.W.; Diamond, R.C.; Dickerhoff, D.J.; Levinson, R.; Modera, M.P.; Nematollahi, M.; Wang, D. "Duct systems in large commercial buildings: physical characterization, air leakage and heat conduction gains." Energy & Buildings, Volume 32, Pages 109-119. 2000. LBNL-42339 .
- Xu, T. "Duct System Performance and Energy Losses in Large Commercial Building." 1999. LBNL-44221 .
- Modera, M.; Xu, T.; Feustel, H.E.; Matson, N.E.; Huizenga, C.; Baumann, F.; Arens, E. "Efficient thermal energy distribution in commercial buildings – Final Report." 1999. LBNL-41365 .
- Franconi, Ellen. "Measuring advances in HVAC distribution system designs." 1998. LBNL-43188 .
- Franconi, E. "Measuring Advances in HVAC Distribution System Design." Proceedings of the 1998 ACEEE Summer Study on Energy and Efficiency in Buildings, Pacific Grove, CA, Volume 3, Pages 153-165, American Council for an Energy Efficient Economy, Washington, DC. 1998. LBNL-41956 .
- Delp, W.W.; Matson, N.E.; Modera, M.P. "Exterior Exposed Ductwork: Delivery Effectiveness and Efficiency." ASHRAE Transactions, Volume 104, Pages 709-721. 1998. LBNL-39083 .

Levinson, R.; Delp, W.; Dickerhoff, D.; Fisk, W.; Nematollahi, M.; Stordahl, I.; Torre, C.; Wang, D.; Diamond, R.; Modera, M. "Commercial Thermal Distribution Systems: Final Report for CIEE." 1997. LBNL-40105.

Delp, W.; Matson, N.; Tschudy, E.; Modera, M.; Diamond, R. "Field Investigation of Duct System Performance in California-Light Commercial Buildings." 1997. LBNL-40102.

Walker, I.; Modera, M.; Tuluca, A.; Graham, I. "Energy effectiveness of duct sealing and insulation in two multifamily buildings." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 1, Pages 247-254, American Council for an Energy Efficient Economy, Washington, DC. 1996. LBL-38538.

Stetiu, C.; Feustel, H. E. "Development of a Model to Simulate the Performance of Hydronic Radiant Cooling Ceilings." 1995. LBL-36636.

2.5. Ventilation and Air Cleaning

Shendell, D.G; Prill,R.; Fisk, W.J.; Apte, M.G.; Blake, D.; Faulkner, D. "Associations between classroom CO₂ concentrations and student attendance in Washington and Idaho." Accepted for publication in Indoor Air 2004. 2004. LBNL-54413.

Fisk, B.; Faulkner, D; Sullivan, D. "Performance of underfloor air distribution: Results of a field study." 2004. LBNL-56257.

Fisk, B.; Faulkner, D; Sullivan, D. "An evaluation of technologies for real-time measurement of rates of outdoor airflow into HVAC systems." 2004. LBNL-56397.

Apte, M G.; Faulkner, D; Hodgson, A.; Sullivan, D. "Classroom HVAC: Improving ventilation and saving energy field study plan." 2004. LBNL-56527.

Seppänen, O.; Fisk, W.J.; Faulkner, D. "Cost benefit analysis of the night-time ventilative cooling in office building." Proceedings of the Healthy Buildings 2003 Conference, Singapore, Volume 3, Pages 394-399, Healthy Buildings 2003, Inc., Singapore. 2003. LBNL-53191.

Hodgson, A.T.; Faulkner, D.; Sullivan, D.P.; Dibartolomeo, D.L.; Russell, M.L.; Fisk, W.J. "Effect of Outside Air Ventilation Rate on Volatile Organic Compound Concentrations in a Call Center." Atmospheric Environment, Volume 37, Pages 5517-5528. 2003. LBNL-52497.

Fisk, W.J.; Faulkner, D.; Sullivan, D.P.; Delp, W.W. "Outdoor airflow into HVAC systems: An evaluation of measurement technologies." 2003. LBNL-53834.

Fisk, W.J.; Faulkner, D.; Palonen, J.; Seppänen, O. "Performance and Costs of Particle Air Filtration in HVAC Supply Airstreams." HPAC Engineering, Volume 75, Pages 24-36. 2003. LBNL-53212.

Faulkner, D.; Fisk, W.J.; Sullivan, D.P.; Lee, S.M. "Ventilation Efficiencies And Thermal Comfort Results Of A Desk-Edge-Mounted Task Ventilation System." Accepted for publication in Indoor Air 2003. 2003. LBNL-53798.

Alevantis, L.; Wagner, J.; Fisk, W.J.; Sullivan, D.P.; Faulkner, D. "Designing for Smoking Rooms." ASHRAE Journal, Volume 45, Pages 26-32. 2003. LBNL-53201.

Gundel, L.A.; Sullivan, D.P.; Katsapov, G.Y.; Fisk, W.J. "A Pilot Study Of Energy Efficient Air Cleaning For Ozone." 2002. LBNL-51836.

Fisk, W.J.; Price, P.N.; Faulkner, D.; Sullivan, D.P.; Dibartolomeo, D.; Federspiel, C.; Liu, L.; Lahiff, M. "Worker productivity and ventilation rate in a call center: analyses of time-series data for a group of workers." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 790-795, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49356.

Fisk, WJ; Faulkner, D; Palonen, J; Seppänen, O. "Performance and cost of particle air filtration technologies." Indoor Air, Volume 12, Pages 223-234. 2002. LBNL-47833.

Faulkner, D.; Fisk, W.J.; Sullivan, D.P.; Lee, S.M. "Ventilation efficiencies of a desk-edge-mounted task ventilation system." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 4, Pages 1060-1065, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49939.

Apte, M.G.; Delp, W.W.; Diamond, R.C.; Hodgson, A.T.; Kumar, S.; Shendell, D.G.; Sullivan, D.P.; Fisk, W.J. "Report on HVAC Option Selections for a Relocatable Classroom Energy and Indoor Environmental Quality Field Study." 2001. LBNL-49026 .

Fisk, W.J.; Sullivan, D.; Mendell, M. "Particle Concentrations in an Air-Conditioned Office Building with Normal and High Efficiency Filtration." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 4, Pages 19-24, Construction Research Communications, Ltd., London. 1999. LBNL-43174.

Faulkner, D.; Fisk, W.J.; Sullivan, D.; Wyon, D.P. "Ventilation Efficiencies of Desk-Mounted Task/Ambient Conditioning Systems." Proceedings of the Indoor Air '99 Conference, Edinburgh, Scotland, Volume 9, Pages 273-281, Construction Research Communications, Ltd., London. 1999. LBNL-42700 .

Faulkner, D.; Fisk, W.J.; Sullivan, D; Wyon, D.P. "Ventilation Efficiencies of Task Air Conditioning Systems With Desk-Mounted Air Supplies." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 2, Pages 356-361, Construction Research Communications. Ltd., London. 1999. LBNL-42597 .

Fisk, W.J.; de Almeida, A.T. "Sensor based demand controlled ventilation: a review." Energy and Buildings, Volume 29, Pages 35-44. 1998. LBNL-41698.

Faulkner, D. F.; Fisk, W.J.; Sullivan, D.P.; Thomas, J.M. "Characterizing Building Ventilation with the Pollutant Concentration Index: Results from Field Studies." Proceedings of the ASHRAE IAQ and Energy 1998, Pages 27-35, ASHRAE, Atlanta, GA. 1998. LBNL-40223.

Fisk, W.J.; Faulkner, D.; Sullivan, D.P.; Bauman, F. "Air Change Effectiveness and Pollutant Removal Efficiency During Adverse Mixing Conditions." Indoor Air, Volume 7, Pages 55-63. 1997. LBNL-40292.

Faulkner, D.; Fisk, W.J.; Walton, J.T. "Energy Savings in Cleanrooms from Demand-Controlled Filtration." Journal of the Institute of Environmental Sciences, Volume 39, Pages 21-27. 1996. LBNL-38869.

Faulkner, D.; Fisk, W.J.; Sullivan, D.P. "Indoor Airflow and Pollutant Removal in a Room With Floor-Based Task Ventilation: Results of Additional Experiments." Building and Environment, Volume 30, Pages 323-332. 1995. LBL-36131.

2.6. Volatile Organic Compounds

Hodgson, A.T.; Shendell, D.G.; Fisk, W.J.; Apte, M.G. "Comparison of predicted and derived measures of volatile organic compounds inside four relocatable classrooms due to identified interior finish sources." Accepted for publication in Indoor Air. 2004. LBNL-52520 .

Hodgson, A.T.; Faulkner, D.; Sullivan, D.P.; Dibartolomeo, D.L.; Russell, M.L.; Fisk, W.J. "Effect of Outside Air Ventilation Rate on Volatile Organic Compound Concentrations in a Call Center." Atmospheric Environment, Volume 37, Pages 5517-5528. 2003. LBNL-52497 .

Hodgson, A.T.; Levin, H. "Volatile organic compounds in indoor air: A review of concentrations measured in North America since 1990." Accepted for publication in Atmospheric Environment. 2003. LBNL-51715 .

Hodgson, A.T.; Levin, H. "Classification of measured indoor volatile organic compounds based on noncancer health and comfort considerations." To be submitted to Atmospheric Environment. 2003. LBNL-53308 .

Zhao, D; Little, J.C.; Hodgson, A.T. "Modeling the Reversible Sink Effect in Response to Transient Contaminant Sources." Indoor Air, Volume 12, Pages 184-190. 2002. LBNL-47095.

Shendell, D.G.; Hodgson, A.T.; Lee, S.M; Apte, M.G.; Sullivan, D.P.; Hotchi, T.; Fisk, W.J. "VOCs in New Relocatable Classrooms: Assessment of School-Day Exposures Comparing Interior Finish Materials and HVAC Systems." Epidemiology, Volume 13, Pages S143. 2002. Abstract (no LBNL number).

Hodgson, A.T.; Faulkner, D.; Sullivan, D.P.; DiBartolomeo, D.L.; Russell, M.L.; Fisk, W.J. "Effect of outside air ventilation rate on VOC concentrations and emissions in a call center." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 2, Pages 168-173, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49535.

Hodgson, A.T.; Apte, M.G.; Shendell, D.G.; Beal, D.; McIlvaine, J.E.R. "Implementation of VOC Source Reduction Practices in a Manufactured House and in School Classrooms." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 3, Pages 576-581, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49536.

Hodgson, A.T.; Fisk, W.J.; Shendell, D.G.; Apte, M.G. "Predicted concentrations in new relocatable classrooms of volatile organic compounds emitted from standard and alternate interior finish materials." 2001. LBNL-48490.

Hodgson, A.T. "Common Indoor Sources of Volatile Organic Compounds: Emission Rates and Techniques for Reducing Consumer Exposures." 1999. LBNL-42402.

Levin, H.; Hodgson, A.T. "Screening and Selecting Building Materials and Products Based on Their Emissions of Volatile Organic Compounds (VOCs)." ASTM STP 1287, Characterizing Sources of Indoor Air Pollution and Related Sink Effects, Pages 376-391, American Society for Testing and Materials, Philadelphia, PA. 1996.

Mahanama, K. R. R.; Hodgson, A. T. "An Improved Impregnated-filter Method for Measuring Low-level Concentrations fo Toluene Diisocyanates in Air." 1995.

3. Residential Building Energy and Environmental Quality

3.1. Energy Retrofits and Diagnostics

Walker, I.S. "Best practices guide for residential HVAC retrofits." 2004. LBNL-53592.

McWilliams, J.; Walker, I.S. "A systems approach to retrofitting residential HVAC systems." Submitted to 2004 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, American Council for an Energy Efficient Economy, Washington, DC. 2004. LBNL-54696.

Matson, N.; Sherman, M. "Why We Ventilate Our Houses An Historical Look." Submitted to 2004 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, August 22-27, 2004, American Council for an Energy Efficient Economy, Washington, DC. 2004. LBNL-55107.

Wray, Craig; Walker, Iain; Sherman, Max. "Guidelines for Residential Commissioning." 2003. LBNL-48767

Walker, I.S.; Sherman, M.H. "Heat Recovery in Building Envelopes." 2003. LBNL 53484.

Walker, I.S.; McWilliams, J.A.; Konopacki., S.J. "Case Study Field Evaluation of a Systems Approach to Retrofitting a Residential HVAC System." 2003. LBNL-53444.

Sherman, M.H.; Walker, I.S.; Wray, C.P. "Instrumented home energy rating and commissioning." 2003. LBNL-52216.

Wray, C.P.; Walker, I.S.; Sherman, M.H. "Accuracy of flow hoods in residential applications." Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, California, Volume 1, Pages 339-350, American Council for an Energy Efficient Economy, Washington, DC. 2002. LBNL-49697.

Wray, C.P.; Walker, I.S.; Siegel, J.A.; Sherman, M.H. "Practical Diagnostics for Evaluating Residential Commissioning Metrics." 2002. LBNL-45959.

Siegel, J.; Walker, I.S.; Sherman, M.H. "Dirty air conditioners: Energy implications of coil fouling." Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, American Council for an Energy Efficient Economy, Washington, DC. 2002. LBNL-49757.

Siegel, J.A.; Wray, C.P. "An Evaluation of Superheat-Based Refrigerant Charge Diagnostics for Residential Cooling Systems." ASHRAE Transactions, Volume 108. 2002. LBNL-47476.

Matson, N.E.; Wray, C.P.; Walker, I.S.; Sherman, M.H. "Potential Benefits of Commissioning California Homes." 2002. LBNL-48258.

Diamond, Rick. "What might U.S. homes and workplaces be like in the year 2020—and what are the implications for energy use?." 2002. LBNL-50184.

Wray, C.P.; Sherman, M.H. "Residential Commissioning to Assess Envelope and HVAC System Performance." Proceedings of the ASHRAE/DOE/BTECC Thermal Performance of Exterior Envelopes of Whole Buildings VIII, Clearwater Beach, FL, ASHRAE, Atlanta, GA. 2001. LBNL-47412.

Wray, C.P.; Piette, M.A.; Sherman, M.H.; Levinson, R.M.; Matson, N.E.; Driscoll, D.A.; McWilliams, J.A.; Xu, T.T.; Delp, W.W. "Residential Commissioning: A Review of Related Literature." 2000. LBNL-44535.

Salsbury, T.I.; Diamond, R.C. "Performance validation and energy analysis of HVAC systems using simulation." Energy & Buildings, Volume 32, Pages 5-17. 2000. LBNL-43638.

Diamond, R.C. "An Overview of the U.S. Building Sector." Chapter 6 in Indoor Air Quality Handbook, McGraw Hill, New York. 2000. LBNL-43640.

Diamond, R.C.; Moezzi, M. "Revealing myths about people, energy and buildings." Proceedings of the ACEEE 2000 Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 8, Pages 65-77, American Council for an Energy Efficient Economy, Washington, DC. 2000. LBNL-45862.

Salsbury, T.I.; Diamond, R.C. "Automated Testing of HVAC Systems for Commissioning." 1999. LBNL-43639.

Matson, N.E.; Feustel, H.E. "Residential Ventilation Systems." 1998. LBNL-40859.

Said, N.; Brown, W.; Walker, I. "Long Term Monitoring of an EIFS Clad Wall." Journal of Thermal Insulation and Building Envelopes, Volume 20, Pages 320-338. 1997.

Walker, I.; Modera, M.; Tuluca, A.; Graham, I. "Energy effectiveness of duct sealing and insulation in two multifamily buildings." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 1, Pages 247-254, American Council for an Energy Efficient Economy, Washington, DC. 1996. LBL-38538 .

Stetiu, C.; Feustel, H.E. "Phase Change Wallboard as an Alternative to Compressor Cooling in Residences?." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 19, Pages 157-170, American Council for an Energy Efficient Economy, Washington, DC. 1996. LBL-38320.

Stetiu, C.; Feustel, H.E.; Nakano, Y. "Ventilation Control Strategies for Buildings with Hydronic Radiant Cooling in Hot Humid Climates." Proceedings of the RoomVent 1996, Yokohama, Japan, Pages 1, Institute of Industrial Science, University of Tokyo, Tokyo, Japan. 1996. LBNL-38320.

Sherman, M.H. "The Use of Blower-Door Data." Indoor Air, Volume 5, Pages 215-224. 1995. LBL-35173 .

Feustel, H. W. "Simplified Numerical Description of Latent Storage Characteristics for Phase Change Wallboard." 1995. LBL-36933.

3.2. Indoor Environmental Quality

Sherman, Max H.; Matson, Nance E. "Reducing Indoor Residential Exposures to Outdoor Pollutants." 2003. LBNL-51758 .

IED Staff. "A compilation of papers for the Indoor Air 2002 Conference in memory of Joan M. Daisey." 2002. LBNL-50419 .

Fisk, W.J.; Brager, G.; Burge, H.; Cummings, J.; Levin, H.; Loftness, V.; Mendell, M.J.; Persily, A.; Taylor, S.; Zhang, J.S. "Energy-related indoor environmental quality research: A priority agenda." 2002. LBNL-51328 .

Fisk, W.J.; Brager, G.; Brook, M.; Burge, H.; Cole, J.; Cummings, J.; Levin, H.; Loftness, V.; Logee, T.; Mendell, M.J.; Persily, A.; Taylor, S.; Zhang, J. "A priority agenda for energy-related indoor environmental quality research." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 2, Pages 984-989, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50612 .

Tenwolde, A.; Walker, I.S. "Interior Moisture Design Loads for Residences." Proceedings of the ASHRAE/DOE/BTECC Thermal Performance of Exterior Envelopes of Whole Buildings VIII, Clearwater Beach, FL, ASHRAE, Atlanta, GA. 2001.

IED Staff. "Recent Research on Indoor Air Quality: A Compilation in Memory of Joan Daisey." 2000. LBNL-45463.

Morrison, G.C. "Ozone-Surface Interactions: Investigations of Mechanisms, Kinetics, Mass Transport, and Implications for Indoor Air Quality." 1999. LBNL-45044.

Ten Brinke, J.; Selvin, S.; Hodgson, A.T.; Fisk, W.J. "Development of new VOC exposure metrics and their relationship to sick building syndrome symptoms." Indoor Air, Volume 8, Pages 140-152. 1998. LBNL-42047.

Morrison, G.C.; Nazaroff, W.W.; Cano-Ruiz, A.; Hodgson, A.T.; Modera, M.P. "Indoor Air Quality Impacts of Ventilation Ducts: Ozone Removal and Emissions of Volatile Organic Compounds." Journal of Air and Waste Management Association, Volume 48, Pages 941-952. 1998. LBNL-43849.

Traynor, G.W.; Apte, M.G.; Chang, G. "Pollutant Emission Factors from Residential Natural Gas Appliances: A Literature Review." 1996. LBL-38123.

Hodgson, A.T. "Measurement of Indoor Air Quality in Two New Test Houses." 1996. LBNL-37929.

Daisey, J.; Lee, J. "Total exposure – Indoor and outdoor air in residential and occupational settings." Proceedings of the 2nd Colloquium on Particulate Air Pollution and Human Health, Park City, UT, Department of Community and Environmental Medicine, University of California, Irvine, CA. 1996.

Sherman, M.H. "The Use of Blower-Door Data." Indoor Air, Volume 5, Pages 215-224. 1995. LBL-35173 .

3.3. Infiltration, Ventilation and Air Cleaning

Walker, I.S. "Improving Air Handler Efficiency in Houses." Submitted to ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, August 22-27, 2004, American Council for an Energy Efficient Economy, Washington, DC. 2004. LBNL-54760 .

Sherman, M.H. "ASHRAE's first residential ventilation standard." Submitted to Buildings IX Conference, Clearwater, FL, ASHRAE, Atlanta, GA. 2004. LBNL-54331.

Sherman, M.H.; Hodgson, A.T. "Formaldehyde as a Basis for Residential Ventilation Rates." Indoor Air, Volume 14, Pages 2-9. 2004. LBNL-49577 .

Sherman, Max H. "ASHRAE's New Residential Ventilation Standard." ASHRAE Journal, Volume 46, Pages 149-156. 2004. LBNL-53776 .

Walker, I.S.; Sherman, M.H. "Heat Recovery in Building Envelopes." 2003. LBNL 53484.

Walker, Iain S.; Sherman, Max H. "Ventilation Technologies Scoping Study." 2003. LBNL-53811 .

Sherman, Max H.; Chan, Wanyu R. "Building Airtightness: Research and Practice." State of the Art in Ventilation, Pages 8-12, James & James. 2003. LBNL-53356 .

McWilliams, Jennifer. "Review of air flow measurement techniques." 2003. LBNL-49747 .

Chan, W.R.; Price, P. N.; Sohn, M.D.; Gadgil, A.J. "Analysis of U.S. Residential Air Leakage Database." 2003. LBNL-53367 .

Wray, Craig P. "Suite Ventilation Characteristics of Current Canadian Mid-and High-Rise Residential Buildings." ASHRAE Transactions, Volume 110 (Part 2). 2002. LBNL-43254 .

Theaker, I.G.; Wray, C.P. "Ventilation System Design of Recent Canadian Multi-Unit Residential Buildings." ASHRAE Transactions, Volume 106. 2002.

Sherman, M.H.; Matson, N.E. "Air Tightness of New U.S. Houses: A Preliminary Report." 2002. LBNL-48671 .

Abadie, M.O.; Finlayson, E.O.; Gadgil, A. J. "Infiltration heat recovery in building walls: Computational fluid dynamics investigations results." 2002. LBNL-51324 .

Sherman, M.H.; Walker, I.S. "Heat Recovery in Building Envelopes." Proceedings of the ASHRAE/DOE/BTECC Thermal Performance of Exterior Envelopes of Buildings VIII, Clearwater Beach, FL, ASHRAE, Atlanta, GA. 2001. LBNL-47329 .

Wray, C.P.; Matson, N.E.; Sherman, M.H. "Selecting Whole-House Ventilation Strategies to Meet Proposed ASHRAE 62.2: Energy Cost Considerations." ASHRAE Transactions, Volume 106, Pages 681-691. 2000. LBNL-44479 .

Buchanan, C.R.; Sherman, M.H. "A Mathematical Model for Infiltration Heat Recovery." 2000. LBNL-44294 .

Walker, I.S. "Distribution System Leakage Impacts on Apartment Building Ventilation Rates." ASHRAE Transactions, Volume 105, Pages 943-950. 1999. LBNL- 42127.

Sherman, M. "ASHRAE's Residential Ventilation Standard: Exigesis of Proposed Standard 62.2." ASHRAE Journal. 1999. LBNL-42975 .

Diamond, R.C.; Feustel, H.E.; Matson, N. "A Guide to Energy Efficient Ventilation in Apartment Buildings, US Department of Energy (DOE/EE-0196)." 1999. LBNL-43641.

Wray, C.P.; Theaker, I.G.; Moffatt, P. "Field Testing to Characterize Suite Ventilation in Recently Constructed Mid- and High-Rise Residential Buildings." 1998.

Walker, I.S.; Wilson, D.J. "Field Validation of Algebraic Equations for Stack and Wind Driven Air Infiltration Calculations." HVAC&R Research, Volume 4, Pages 119-139. 1998. LBNL-42361 .

Walker, I.S.; Wilson, D.J.; Sherman, M.H. "A Comparison of the Power Law to Quadratic Formulations for Air Infiltration Calculations." Energy and Buildings, Volume 27, Pages 293-299. 1998. LBNL-41447 .

Sherman, M.H; Dickerhoff, D.J. "Air Tightness of U.S. Dwellings." ASHRAE Transactions, Volume 104, Pages 1359-1367. 1998.

Feustel, H.E; Diamond, R.C. "Ventilation in Highrise Apartments." Proceedings of the Room Vent 1998 Conference, Stockholm, Sweden, KTH, Stockholm, Sweden. 1998. LBNL-43642.

Buchanan, C.R.; Sherman, M.H. "CFD Simulation of Infiltration Heat Recovery." Proceedings of the 19th AIVC Conference, Oslo, Norway, Air Infiltration and Ventilation Centre, Coventry, United Kingdom. 1998. LBNL-42098.

Apte, M.G.; Nero, A.V.; Revzan, K.L. "LBL Meteorological Database for the United States." 1998. LBL-33854.

Forowicz, T. "New Generation of Sofware: Modeling of Energy Demands for Residential Ventilation with HTML Interface." 1997. LBNL-40423.

Walker, I.S.; Wilson, D.J.; Forest, T.W. "A Wind Shadow Model for Air Infiltration Sheltering by Upwind Obstacles." ASHRAE HVAC&R Research Journal, Volume 2, Pages 265-283. 1996.

Sherman, M.; Matson, N. "Residential Ventilation and Energy Characteristics." 1996. LBNL-39036 .

Feustel, H.E.; Diamond, R.C. "Diagnostics and measurements of infiltration and ventilation systems in high-rise apartment buildings." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 1, Pages 95-101, American Council for an Energy Efficient Economy, Washington, DC. 1996. LBL-38103.

Diamond, R.C.; Feustel, H.E.; Dickerhoff, D.J. "Ventilation and Infiltration in Highrise Apartment Buildings." 1996. LBNL-38103.

Walker, I.S.; Forest, T.W. "Field Measurements of Ventilation Rates in Attics." Building and Environment, Volume 30, Pages 333-347. 1995.

Walker, I.S.; Forest, T.W.; Wilson, D.J. "A Simple Calculation Method for Attic Ventilation Rates." Proceedings of the 16th AIVC Conference, Volume 1, Pages 221-232, Air Infiltration and Ventilation Centre, Coventry, Great Britain. 1995. LBL-36879.

3.4. Radon

Prill, R.; Fisk, W.J. "Long Term Performance of Radon mitigation systems." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 2, Pages 641-646, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50041 .

Hopke, P.K.; Borak, T.B.; Doull, J.; Cleaver, J.E.; Eckerman, K.F.; Gundersen, L.C.; Harley, N.H.; Hess, C.E.; Kinner, N.E.; Kopecky, K.J.; McKone, T.E.; Sextro, R.G.; Simon, L.G. "Health risks due to radon in drinking water." Environmental Science & Technology, Volume 34, Pages 921-926. 2000.

- Riley, W.J.; Robinson, A.L.; Gadgil, A.; Nazaroff, W. "Effects of variable wind speed and direction on radon transport from soil into buildings: model development and exploratory results." *Atmospheric Environment*, Volume 33, Pages 2157-2168. 1999. LBNL-43652.
- Garbesi, K.; A.L. Robinson; R.G. Sextro; W.W. Nazaroff. "Radon entry into houses: The importance of scale-dependent permeability." *Health Physics*, Volume 77, Pages 83-191. 1999. LBNL-44040.
- Apte, M.G.; Price, P.N.; Nero, A.V.; Revzan, K.L. "Predicting Indoor Radon Concentrations in New Hampshire from Geologic Information and Other Covariates." *Environmental Geology*, Volume 37, Pages 181-194. 1999. LBNL-38961.
- Ruzer, L.S.; Sextro, R.G. "Measurement of Radon Decay Products in Air by Alpha- and Beta-Spectrometry." *Radiation Protection Dosimetry*, Volume 72, Pages 43-48. 1997.
- Robinson, A.L.; Sextro, R.G.; Riley, W.J. "Soil-Gas Entry Into Houses Driven By Atmospheric Pressure Fluctuations – the Influence of Soil Properties." *Atmospheric Environment*, Volume 31, Pages 1487-1495. 1997.
- Robinson, A.L.; Sextro, R.G. "Radon Entry into Buildings Driven by Atmospheric Pressure Fluctuations." *Environmental Science & Technology*, Volume 31, Pages 1742-1748. 1997.
- Price, P.N. "Predictions and Maps of County Mean Indoor Radon Concentrations in the Mid-Atlantic States." *Health Physics*, Volume 72, Pages 893-906. 1997.
- Robinson, A.L.; Sextro, R.G.; Fisk, W.J. "Soil gas entry into an experimental basement driven by atmospheric pressure fluctuations, measurements, spectral analysis, and model comparison." *Atmospheric Environment*, Volume 31, Pages 1477-1485. 1996.
- Riley, W.J.; Gadgil, A.J.; Bonnefous, Y.C.; Nazaroff, W.W. "The Effect of Steady Winds on Radon Entry into Houses." *Atmospheric Environment*, Volume 30, Pages 1167-1176. 1996. LBL-36372.
- Riley, W.J.; Fisk, W.J.; Gadgil, A.J. "Regional and National Estimates of the Potential Energy Use, Energy Cost, and CO₂ Emissions Associated with Radon Mitigation by Sub-Slab Depressurization." *Energy and Buildings*, Volume 24, Pages 203-212. 1996. LBL-36368.
- Price, P.N.; Nero, A.V. "Joint Analysis of Long- and Short-Term Radon Monitoring Data from the Northern U.S." *Environmental International*, Volume 22, Pages 669-714. 1996. LBL-37276.
- Garbesi, K.; Sextro, R.G.; Robinson, A.L.; Wooley, J.D.; Owens, J.A.; Nazaroff, W.W. "Scale Dependence of Soil Permeability to Air: Measurement Method and Field Investigation." *Water Resource Research*, Volume 32, Pages 547-560. 1996. LBL-35369.
- Robinson, A.L.; Sextro, R.G. "Direct measurements of soil-gas entry into an experimental basement driven by atmospheric pressure fluctuations." *Geophysical Research Letters*, Volume 22, Pages 1929-1932. 1995. LBL-36743.
- Robinson, A.L.; Sextro, RG. "The Influence of a Subslab Gravel Layer and Open Area on Soil-Gas and Radon Entry into Two Experimental Basements." *Health Physics*, Volume 69, Pages 367-377. 1995. LBL-35943.
- Riley, W.J.; Gadgil, A.J.; Nazaroff, W.W. "Wind-induced Ground Pressures Around a Single-family House." *Journal of Wind Engineering and Industrial Aerodynamics*, Volume 61, Pages 153-167. 1995. LBL-38435.
- Revzan, K. L.; Price, P. N.; Nero, A. V. "Bayesian Analysis of the Relationship Between Indoor Radon Concentrations and Predictive Variables in US Houses." 1995. LBL-38194.
- Price, P. N.; Nero, A. V.; Gelman, A. "Bayesian Prediction of Mean Indoor Radon Concentrations for Minnesota Counties." 1995. LBL-35818.
- Price, P. N. "The Regression Effect as a Cause of the Nonlinear Relationship Between Short- and Long-Term Radon Concentration Measurements." *Health Physics Society*, Volume 69, Pages 111-114. 1995. LBL-35819.

Fisk, W.J.; Prill, R.J.; Fisk, J.W.; Bonnefous, Y.C.; Gadgil, A.J.; Riley, W.J. "New Methods of Energy Efficient Radon Mitigation." *Health Physics*, Volume 68, Pages 689-698. 1995. LBL-36519.

3.5. Thermal Distribution (Ducts)

Sherman, M.; Walker, I.S. "Duct Tape Durability Testing." 2004. LBNL-54767 .

Walker, I.S.; Wray, C.P. "Evaluation of Flow Capture Techniques for Measuring HVAC Grille Airflows." *ASHRAE Transactions*, Volume 109. 2003. LBNL-51550 .

Walker, Iain S.; Wray, Craig P.; Guillot, Cyril; Masson, S. "Evaluation of Commercially Available Techniques and Development of Simplified Methods for Measuring Grille Airflows in HVAC Systems." 2003. LBNL-51551 .

Walker, Iain S.; Brenner, Douglas E.; Sherman, Max H.; Dickerhoff, Darryl J. "Evaluation of PEGIT Duct Connection System." 2003. LBNL-43382 .

Walker, Iain S.; Guillot, Cyril. "Experimental Evaluation of Gas Filled Plenum Duct Insulation." 2003. LBNL-52084 .

Walker, I.S.; Mingee, M.D.; Brenner, D.E. "Improving Air Handler Efficiency in Residential HVAC Applications." 2003. LBNL-53606 .

Siegel, J.; Walker, I.S. "Integrating ducts into the conditioned space: Successes and challenges." *Architectural Engineering Institute Conference*, Austin, TX. 2003. LBNL-55675 .

Sherman, M.H.; Walker, I.S. "Advanced Duct Sealant Testing." 2003. LBNL-53547 .

Walker, I.S.; Dickerhoff, D.J.; Sherman, M.H. "The Delta Q method of testing the air leakage of ducts." *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*, Pacific Grove, CA, Volume 1, Pages 327-338, American Council for an Energy Efficient Economy, Washington, DC. 2002. LBNL-49749 .

Siegel, J.A.; Nazaroff, W.W. "Modeling Particle Deposition on HVAC Heat Exchangers." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 1, Pages 521-526, *Indoor Air 2002*, Santa Cruz, CA. 2002. LBNL-49339 .

Siegel, J.A.; McWilliams, J.A.; Walker, I.S. "Comparison between predicted duct effectiveness from proposed ASHRAE standard 152P and measured field data for residential forced air cooling systems." *ASHRAE Transactions*, Volume 109. 2002. LBNL-50008 .

Abushakra, B.; Walker, I.S.; Sherman, M.H. "A study of pressure losses in residential air distribution systems." *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*, Pacific Grove, CA, Volume 1, Pages 1-14, American Council for an Energy Efficient Economy. 2002. LBNL-49700 .

Abushakra, B. "Longevity of duct tape in residential air distribution systems: 1-D, 2-D, and 3-D joints." 2002. LBNL-51099 .

Walker, I.S.; Siegel, J.A.; Degenetais, G. "Simulation of Residential HVAC System Performance." *Proceedings of the ESIM 2001 Conference*, Ontario, Canada, Pages 43-50, CANMET Energy Technology Centre/Natural Resources Canada, Ottawa, Canada. 2001. LBNL-47622 .

Walker, I.S. "Sensitivity of forced air distribution system efficiency to climate, duct location, air leakage and insulation." 2001. LBNL-43371 .

Walker, I.S.; Sherman, M.H.; Wempen, J.; Wang, D.; McWilliams, J.A.; Dickerhoff, D.J. "Development of a New Duct leakage Test: Delta Q." 2001. LBNL-47308 .

Walker, I.S.; Wray, C.P.; Dickerhoff, D.J.; Sherman, M.H. "Evaluation of flow hood measurements for residential register flows." 2001. LBNL-47382 .

Siegel, Jeffrey. "Fouling of HVAC fin and tube heat exchangers." 2001. LBNL-47668 .

- Siegel, J.A.; Walker, I.S. "Deposition of biological aerosols on HVAC heat exchangers." 2001. LBNL-47669 .
- Carrie, F.R.; Modera, M.P. "Experimental investigation of aerosol deposition on slot-and joint-type leaks." Journal of Aerosol Science, Volume 33, Pages 1447-1462. 2001. LBNL-48774 .
- Walker, I.S. "Assessing the longevity of residential duct sealants." Proceedings of the RILEM 3rd International Symposium, France, Pages 71-86, RILEM Publications S.A.R.I. Cachan Cedex, France. 2000. LBNL-43381 .
- Walker, I.S.; Sherman, M.H.; Siegel, J.A.; Modera, M.P. "Effects of Duct Improvement and ENERGYSTAR Equipment on Comfort and Energy Efficiency." 2000. LBNL-43723 .
- Siegel, J.A.; Walker, I.A.; Sherman, M.H. "Delivering Tons to the Register: Energy Efficient Design and Operation of Residential Cooling System." Proceedings of the ACEEE Summer Study 2000, Pacific Grove, CA, Volume 1, Pages 295-306, American Council for an Energy Efficient Economy, Washington, DC. 2000. LBL-45315.
- Sherman, M.H.; Walker, I.S.; Dickerhoff, D.J. "Stopping Duct Quacks: Longevity of Residential Duct Sealants." Proceedings of the ACEEE 2000 Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 1, Pages 273-284, American Council for an Energy Efficient Economy, Washington, DC. 2000. LBNL-45423 .
- Levinson, R.M.; Delp, W.W.; Dickerhoff, D.J.; Modera, M.P. "Effects of air infiltration on the effective thermal conductivity of internal fiberglass insulation and on the delivery of thermal capacity via ducts." 2000. LBNL-42499 .
- Levinson, R.; Delp, W.; Dickerhoff, D.; Modera, M. "Effects of Airflow Infiltration on the Thermal Performance of Internally-insulated Ducts." Energy & Buildings, Volume 32, Pages 345-354. 2000. LBNL-45447.
- Walker, I.S.; Sherman, M.H.; Siegel, J.A. "Distribution effectiveness and impacts on equipment sizing for residential thermal distribution systems." 1999. LBNL-43724 .
- Feustel, H.E. "COMIS – An International Multizone Air-Flow and Contaminant Transport Model." Energy and Buildings, Volume 30, Pages 3-18. 1999. LBNL-42182 .
- Walker, I.S.; Modera, M.P. "Field Measurements of the Interactions between Furnaces and Forced Air Distribution Systems." ASHRAE Transactions, Volume 104, Pages 1805-1816. 1998. LBNL-40587 .
- Walker, I.; Sherman, M.; Modera, M.; Siegel, J. "Leakage Diagnostics, Sealant Longevity, Sizing and Technology Transfer in Residential Thermal Distribution Systems." 1998. LBNL-41118 .
- Walker, I.; Siegel, J.; Brown, K.; Sherman, M. "Saving Tons at the Register." Proceedings of the 1998 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 1, Pages 367-383, American Council for an Energy Efficient Economy, Washington, DC. 1998. LBNL-41957 .
- Walker, I.S. "Technical Background for Default Values used for Forced Air Systems in Proposed ASHRAE Standard 152P." ASHRAE Transactions, Volume 104, Pages 1360-1375. 1998. LBNL-40588 .
- Sherman, M.H.; Walker, I.S. "Can Duct-Tape Take the Heat?." Home Energy, Volume 15, Pages 14. 1998. LBNL-41434 .
- Jump, D.A.; Walker, I.S.; Modera, M.P. "Field Measurements of Efficiency and Duct Retrofit Effectiveness in Residential Forced Air Distribution Systems." Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings, Pacific Grove, CA, Volume 1, Pages 147-156, American Council for an Energy Efficient Economy, Washington, DC. 1996. LBL-38537.
- Treidler, B.; Modera, M. "New Technologies for Residential HVAC Ducts." 1995. LBNL-35445 .
- Modera, M.P.; Treidler, B. "Improved Modelling of HVAC System/Envelope Interactions in Residential Buildings." Proceedings of the ASME/JSME/JSES International Solar Energy Conference, Maui, HI, Volume 1, Pages 245-252, ASME, Washington, DC. 1995. LBL-36048.

3.6. Volatile Organic Compounds

Hodgson, A.; Nabinger, S.J.; Persily, A. "Volatile Organic Compound Concentrations and Emission Rates Measured over One Year in a New Manufactured House." 2004. LBNL-56272.

Hodgson, A.T.; Levin, H. "Volatile organic compounds in indoor air: A review of concentrations measured in North America since 1990." Accepted for publication in Atmospheric Environment. 2003. LBNL-51715.

Hodgson, A.T.; Levin, H. "Classification of measured indoor volatile organic compounds based on noncancer health and comfort considerations." To be submitted to Atmospheric Environment. 2003. LBNL-53308.

Hodgson, A.T. "Volatile organic chemical emissions from structural insulated panel (SIP) materials and implications for indoor air quality." To be submitted to Atmospheric Environment. 2003. LBNL-53768.

Zhao, D; Little, J.C.; Hodgson, A.T. "Modeling the Reversible Sink Effect in Response to Transient Contaminant Sources." Indoor Air, Volume 12, Pages 184-190. 2002. LBNL-47095.

Hodgson, A.T.; Beal, D.; McIlvaine, J.E.R. "Sources of formaldehyde, other aldehydes and terpenes in a new manufactured house." Indoor Air, Volume 12, Pages 235-242. 2002. LBNL-47627.

Cox, S.S.; Little, J.C.; Hodgson, A.T. "Predicting the emission rate of volatile organic compounds from vinyl flooring." Environmental Science & Technology, Volume 36, Pages 709-714. 2002. LBNL-47094.

Bennett, D.H.; Furtaw, E.J.; McKone, T.E. "A fugacity-based indoor residential pesticide fate model." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 261-266, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-53458.

Cox, S.S.; Hodgson, A.T.; Little, J.C. "Measuring Concentrations of Volatile Organic Compounds in Vinyl Flooring." Journal of the Air & Waste Management Association, Volume 51, Pages 174-185. 2001. LBNL-47086.

Hodgson, A.T.; Rudd, A.F.; Beal, D.; Chandra, S. "Volatile Organic Compound Concentrations and Emission Rates in New Manufactured and Site-Built Houses." Indoor Air, Volume 10, Pages 178-192. 2000. LBNL-43519.

Zhao, D.Y.; Rouques, J.; Little, J.C.; Hodgson, A.T. "Effect of Reversible, Diffusion-Controlled Sinks on VOC Concentrations in Buildings." Proceedings of the Indoor Air 99, Edinburgh, Scotland, Volume 5, Pages 264-269, Construction Research Communications, Ltd., London. 1999. LBNL-43848.

Hodgson, A.T.; D. Beal; Chandra, S. "Concentrations and Sources of Formaldehyde and Volatile Organic Compounds in Four New Manufactured Houses." Proceedings of the Indoor Air '99, Edinburgh, Scotland, Volume 4, Pages 119-124, Construction Research Communications, Ltd., London. 1999. LBNL-42703.

Hodgson, A.T. "Common Indoor Sources of Volatile Organic Compounds: Emission Rates and Techniques for Reducing Consumer Exposures." 1999. LBNL-42402.

Hodgson, A.T.; Shimer, D.A. "Techniques for Reducing Exposures to Volatile Organic Compounds Associated with New Construction and Renovation." 1999. LBNL-42704.

Gundel, L.A.; Lane, D.A. "Sorbent-coated diffusion denuders for direct measurement of gas/particle partitioning by semi-volatile organic compounds, in Advances in Environmental, Industrial and Process Control Technologies." Gas and Particle Partition Measurements of Atmospheric Organic Compounds, Volume 2, Pages 287-332, Newark, Gordon and Breach. 1999.

Ten Brinke, J.; Selvin, S.; Hodgson, A.T.; Fisk, W.J. "Development of new VOC exposure metrics and their relationship to sick building syndrome symptoms." Indoor Air, Volume 8, Pages 140-152. 1998. LBNL-42047.

Morrison, G.C.; Nazaroff, W.W.; Cano-Ruiz, A.; Hodgson, A.T.; Modera, M.P. "Indoor Air Quality Impacts of Ventilation Ducts: Ozone Removal and Emissions of Volatile Organic Compounds." Journal of Air and Waste Management Association, Volume 48, Pages 941-952. 1998. LBNL-43849.

Schaeffer, V.H.; Bhooshan, B.; Chen, S.B.; Sonenthal, J.S.; Hodgson, A.T. "Characterization of volatile organic chemical emissions from carpet cushions." Journal of the Air and Waste Management Association, Volume 46, Pages 813-820. 1996. LBL-35334.

Little, J.C.; Hodgson, A.T. "A Strategy for Characterizing Homogeneous, Diffusion-Controlled, Indoor Sources and Sinks." ASTM STP 1287, Characterizing Sources of Indoor Air Pollution and Related Sink Effects, Pages 294-304, American Society for Testing and Materials. 1996.

Fischer, M.; Bentley, A.; Bunkin, K.; Hodgson, A.; Nazaroff, W.; Sextro, R.; Daisey, J. "Factors Affecting Indoor Air Concentrations of Volatile Organic Compounds at a Site of Subsurface Gasoline Contamination." Environmental Science and Technology, Volume 30, Pages 2948-2957. 1996. LBL-37768.

Mahanama, K. R. R.; Hodgson, A. T. "An Improved Impregnated-filter Method for Measuring Low-level Concentrations of Toluene Diisocyanates in Air." 1995.

Hodgson, A.T. "A Review and a Limited Comparison of Methods for Measuring Total Organic Compounds in Indoor Air." Indoor Air, Volume 5, Pages 247-257. 1995. LBL-32904.

Hodgson, A.T.; Daisey, J.M.; Alevantis, L.E.; Mahanama, K.R.R.; Ten Brinke, J. "Use of Volatile Tracers to Determine the Contribution of Environmental Tobacco Smoke to Concentrations of Volatile Organic Compounds in Smoking Environments." Environmental International, Volume 22, Pages 295-307. 1995. LBL-37376.

4. Indoor Airflow and Pollutant Transport

Sippola, M.R.; Nazaroff, W.W. "Particle Deposition in Ventilation Ducts: Connectors, Bends and Developing Flow." To be submitted to *Aerosol Science and Technology*. 2004. LBNL-54843.

Price, P. N.; Chang, S.C.; Sohn, M.D. "Characterizing buildings for airflow models: What should we measure?." Submitted to *RoomVent 2004 - 9th International Conference on Air Distribution in Rooms*, Coimbra, Portugal. 2004. LBNL-55321.

Levin, H. "Indoor Air Pollutants Part 2: Description of sources and control/mitigation measures." *Air Infiltration and Ventilation Centre*, Pages 1-8. 2004. LBNL-55774.

Kristoffersen, A.R.; Gadgil, A.; Lorenzetti, D. "Effect of room air recirculation delay on the decay rate of tracer gas." Submitted to *RoomVent 2004*, Coimbra, Portugal. 2004. LBNL-55083.

Jayaraman, B.; Lorenzetti, D.; Gadgil, A. "Coupled model for simulation of indoor airflow and pollutant transport." 2004. LBNL-56667.

Jayaraman, B.; Kristoffersen, A.R.; Finlayson, E.O.; Gadgil, A. "Investigation of Room Ventilation for Improved Operation of a Downdraft Table." To be published in *Proceedings of Room Vent 2004*, Coimbra, Portugal.. 2004. LBNL-55561.

Chan, W.R.; Price, P. N.; Gadgil, A.J. "Sheltering in buildings from large-scale outdoor releases." 2004. LBNL-55575.

Thatcher, T.L.; D.J. Wilson; E.E. Wood; M.J. Craig; R.G. Sextro. "Pollutant Dispersion in a Large Indoor Space: Part 1 – Scaled experiments using a water-filled model with occupants and furniture." *Indoor Air*, Volume 14, Pages 258-271. 2003. LBNL-50248.

Mora, L.; Gadgil, A.J.; Wurtz, E. "Comparing zonal and CFD models of air flows in large indoor spaces to experimental data." *Indoor Air*, Volume 13, Pages 77-85. 2003. LBNL-47027.

Levin, H. "Indoor Air Pollutants Part 1: General description of pollutants, levels and standards." *Air Infiltration and Ventilation Centre*, Pages 1-12. 2003. LBNL-55772.

Gadgil, A.J.; Lobscheid, C.; Abadie, M.O.; Finlayson, E.U. "Indoor Pollutant Mixing Time in an Isothermal Closed Room: An investigation using CFD." *Atmospheric Environment*, Volume 37, Pages 5577-5586. 2003. LBNL-51413.

Finlayson, E.U.; Jayaraman, B.; Kristoffersen, A.R.; Gadgil, A.J. "CFD Analysis of LLNL downdraft table." 2003. LBNL-53883.

Finlayson, E.U.; Gadgil, A.J.; Thatcher, T.L.; Sextro, R.G. "Pollutant Dispersion in a Large Indoor Space Part 2 – Computational Fluid Dynamics (CF) Predictions and Comparisons with a Model Experiment for Isothermal Flow." Accepted for publication in *Indoor Air*. 2003. LBNL-50105.

Sohn, M.D.; Reynolds, P.; Gadgil, A.J.; Sextro, R.G. "Rapidly Locating Sources And Predicting Contaminant Dispersion In Buildings." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 4, Pages 211-216, *Indoor Air 2002*, Santa Cruz, CA. 2002. LBNL-49563.

Sohn, M.D.; Reynolds, P.; Singh, N.; Gadgil, A.J. "Rapidly locating and characterizing pollutant releases in buildings: An application of Bayesian data analysis." *Journal of the Air and Waste Management Association*, Volume 52, Pages 1422-1432. 2002. LBNL-47588.

Sextro, R.G.; Lorenzetti, D.M.; Sohn, M.D.; Thatcher, T.L. "Modeling the spread of anthrax in buildings." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 4, Pages 506-511, *Indoor Air 2002*, Santa Cruz, CA. 2002. LBNL-49537.

Lorenzetti, D.M. "Assessing multizone airflow simulation software." *Proceedings of the Indoor Air 2002*, Monterey, CA, Volume 1, Pages 267-271, *Indoor Air 2002*, Santa Cruz, CA. 2002. LBNL-49578.

- Lorenzetti, D.M. "Computational Aspects of Nodal Multizone Airflow Systems." *Building and Environment*, Volume 37, Pages 1083-1090. 2002. LBNL-46949.
- Lorenzetti, D.M. "Predicting Indoor Pollutant Concentrations, and Applications to Air Quality Management." *Proceedings of the Joint WHO-JRC-ECA Workshop on the Role of Human Exposure Assessment in Air Quality Management*, Bonn, Germany. 2002. LBNL-51582.
- Lobscheid, C.; Gadgil, A. J. "Mixing of a point-source indoor pollution: Numerical predictions and comparison with experiments." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 4, Pages 223-228, *Indoor Air 2002*, Santa Cruz, CA. 2002. LBNL-49457.
- Fischer, M. L.; Price, P. N.; Thatcher, T. L.; Schwalbe, C. A.; Craig, M. J.; Wood, E. E.; Sextro, R. G.; Gadgil, A. J. "Rapid Measurement and Mapping of Tracer Gas Concentrations in a Large Indoor Space." *Atmospheric Environment*, Volume 35, Pages 2837-2844. 2002. LBNL-45542.
- Fedderspiel, C.; H. Li; Auslander, D.; Lorenzetti, D.M.; Gadgil, A. J. "Modeling transient contaminant transport in HVAC systems and buildings." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 4, Pages 217-222, *Indoor Air 2002*, Santa Cruz, CA. 2002. LBNL-49603.
- Lorenzetti, D.M. "Assessing Multizone Airflow Software." 2001. LBNL-47653.
- Liu, D.L.; Nazaroff, W.W. "Modeling pollutant penetration across building envelopes." *Atmospheric Environment*, Volume 35, Pages 4451-4462. 2001. LBNL-47785.
- Sohn, M.D.; Small, M.J.; Pantazidou, M. "Reducing uncertainty in site characterization using Bayes Monte Carlo methods." *Journal of Environmental Engineering*, Volume 126, Pages 893-902. 2000. LBNL-48043.
- Robinson, A.L.; Sextro, R.G. "A novel technique to measure the magnitude and direction of flow in a tube." *Journal of Fluids Engineering*, Volume 122, Pages 186-188. 2000.
- Price, P.N.; Fischer, M.L.; Gadgil, A.J.; Sextro, R.G. "Algorithm for rapid tomography of gas concentrations." *Atmospheric Environment*, Volume 35, Pages 2827-2835. 2000. LBNL-46236.
- Lorenzetti, D.M.; Sohn M.D. "Improving Speed and Robustness of the COMIS Solver." *Proceedings of the RoomVent 2000, 7th International Conference on Air Distribution in Rooms*, Reading, UK, Volume 1, Pages 241-246, The University of Reading, P.O. Box 219, Whiteknights, Reading RG6 6AW, United Kingdom. 2000. LBL-44792.
- Gadgil, A.G.; Finlayson, E.U.; Fischer, M.L.; Price, P.N.; Thatcher, T.L.; Craig, M.J.; Hong, K.H.; Housman, J.; Schwalbe, C.A.; Wilson, D.; Wood, E.E.; Sextro, R.G. "Pollutant transport and dispersion in large indoor spaces: A status report for the large space effort of the Interiors Project." 2000. LBNL-44791.
- Thatcher, T.L.; Fischer, M.L.; Price, P.N.; Fisk, W.J.; Gadgil, A.J.; Sextro, R.G. "Measuring dispersion of gases in a large scale indoor environment using an open path tunable diode laser." *Proceedings of the Indoor Air '99*, Edinburgh, Scotland, Volume 4, Pages 449-450, Construction Research Communications, Ltd., London. 1999. LBNL-42714.
- Sohn, M.D.; A. Lai; B.V. Smith; R.G. Sextro; H.E. Feustel; W.W. Nazaroff. "Modeling aerosol behavior in multizone indoor environments." *Proceedings of the Indoor Air '99*, Edinburgh, Scotland, Volume 4, Pages 785-790, Construction Research Communications, Ltd., London. 1999. LBNL-42708.
- Sohn, M.D.; J.M. Daisey; H.E. Feustel. "Characterizing indoor airflow and pollutant transport using simulation modeling for prototypical buildings. 1. Office buildings." *Proceedings of the Indoor Air '99*, Edinburgh, Scotland, Volume 4, Pages 719-724, Construction Research Communications, Ltd., London. 1999. LBNL-42712.
- Price, P.N. "Pollutant tomography using integrated concentration data from non-intersecting optical paths." *Atmospheric Environment*, Volume 33, Pages 275-280. 1999. LBNL-41005.
- Carrie, F.R.; Modera, M.P. "Particle Deposition in a Two Dimensional Slot from a Transverse Stream." *Aerosol Science and Technology*, Volume 28, Pages 235-246. 1998.

Drescher, A.C.; Park, D.Y.; Yost, M.G.; Gadgil, A.J.; Levine, S.P.; Nazaroff, W.W. "Stationary and Time-Dependent Indoor Tracer-Gas Concentration Profiles Measured by OP-FTIR Remote Sensing and SBFM Computed Tomography." *Atmospheric Environment*, Volume 31, Pages 727-740. 1997.

Lin, T. F.; Loy, M. D. V.; Nazaroff, W. W. "Gas-phase transport and sorption of benzene in soil." *Environmental Science and Technology*, Volume 30, Pages 2178-2186. 1996.

Feustel, H.E. "Annex 23 – An International Effort in Multizone Air Flow Modeling." Proceedings of the RoomVent 1996, 5th International Conference on Air Distribution in Rooms, July 17 - 19, Yokohama, Japan, Volume 2, Pages 1-8, Institute of Industrial Science, University of Tokyo, Tokyo, Japan. 1996.

Drescher, A.C.; Gadgil, A.J.; Price, P.N.; Nazaroff, W.W. "Novel Approach for Tomographic Reconstruction of Gas Concentration Distributions in Air: Use of Smooth Basis Functions and Simulated Annealing." *Atmospheric Environment*, Volume 30, Pages 929-940. 1996.

Faulkner, D.; Fisk, W.J.; Sullivan, D.P. "Indoor Airflow and Pollutant Removal in a Room With Floor-Based Task Ventilation: Results of Additional Experiments." *Building and Environment*, Volume 30, Pages 323-332. 1995. LBL-36131.

Drescher, A.C.; Lobascio, C.; Gadgil, A.J.; Nazaroff, W.W. "Mixing of a Point Source Indoor Pollutant by Forced Convection." *Indoor Air*, Volume 5, Pages 204-215. 1995. LBL-37895.

5. Countermeasures to Chemical and Biological Threats

Price, P.N.; Sohn, M.D.; Gadgil, A.J.; Delp, W.W.; Lorenzetti, D.M.; Finlayson, E.U.; Thatcher, T.L.; Sextro, R.G.; Derby, E.A.; Jarvis, S.A. "Protecting Buildings From a Biological or Chemical Attack: actions to take before or during a release." 2003. LBNL-51959.

Sextro, R.G.; Lorenzetti, D.M.; Sohn, M.D.; Thatcher, T.L. "Modeling the spread of anthrax in buildings." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 4, Pages 506-511, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49537.

Price, Phillip N.; Lorenzetti, D.M.; Gadgil, A. J.; Sohn, M.D.; Delp, W.W.; Jarvis, S.A. "Information for first responders to a chemical or biological attack." 2002. PUB-866.

Price, Phillip N.; Delp, W.W.; Sohn, M.D.; Thatcher, T.L.; Lorenzetti, D.M.; Sextro, R.G.; Gadgil, A.G.; Derby, E.; Jarvis, S.A. "Advice for first responders to a building during a chemical or biological attack." 2002. PUB-867.

Black, D.R.; Thatcher, T.L.; Delp, W.W.; Derby, E.A.; Chang, S.C.; Sextro, R.G. "Data summary report of commercial building experiments in Salt Lake City, UT from May 17 to June 10, 2002." 2002. LBNL-53801

.

Thatcher, T.L; Daisey, J.M. "Reducing mortality from urban terrorist releases of chemical and biological agents: I. Filtration for ventilation systems in commercial buildings." 2000. LBNL-44350.

Thatcher, T.L.; Sextro, R.G.; Ermak, D. "Database of Physical, Chemical, and Toxicological Properties of Chemical and Biological (CB) Warfare Agents for Modeling Airborne Dispersion In and Around Buildings." 2000. LBNL-45475 .

6. Developing Country Energy and Environmental Issues

6.1. Water Treatment

Gadgil, A.J.; Derby, E. "Providing safe drinking water to 1.1 billion unserved people." Proceedings of the 96th Annual AWMA Conference, San Diego, CA, Volume Paper No. 70492, Pages Session ES 4i, Air and Waste Management Association, Pittsburgh, PA. 2003. LBNL-52374 .

6.2. Other

Craig, P.; Gadgil, A. J.; Koomey, J. "What can history teach us?: A retrospective analysis of long-term energy forecasts for the U.S." Annual Reviews of Energy and the Environment, Volume 27, Pages 83-118. 2002. LBNL-50498 .

Gadgil, A. J.; Jannuzzi, G. M.; Silva, E.; Leonardi, M.L. "A Cost-Neutral Strategy for Maximal Use of Renewable Energy Sources and Energy Efficiency in Manaus, Brazil." Energy Policy, Volume 27, Pages 357-367. 1999. LBNL-42358.

Kazakevicius, E. "Residential Lighting in Lithuania." Energy Policy, Volume 27, Pages 603-611. 1998. LBNL-44376.

Sastry, M. A.; Gadgil, A. J. "The Bombay Efficient Lighting Large-scale Experiment (BELLE): a blueprint for improving energy efficiency and reducing peak electric demand in a developing country." Atmospheric Environment, Volume 30, Pages 803-808. 1996. LBNL-39491.

Gadgil, A. J. "Projects Toward Energy Sustainability in Cities and Rural Communities in the Developing Countries." Proceedings of the United Nations Habitat II, Istanbul. 1996.

Gadgil, A. J. "Bombay Efficient Lighting Large-Scale Experiment (Belle): Blueprint for Improving Energy Efficiency and Reducing Peak Electric Demand in a Developing Country." Atmospheric Environment, Volume 30, Pages 803-808. 1996. LBNL-39491.

Friedmann, R.; De Buen, O.; Sathaye, J.; Gadgil, A.; Saucedo, R.; Rodriguez, G. "Assessing the Residential Lighting Efficiency Opportunities in Guadalajara and Monterey, Mexico." Energy, Volume 20, Pages 151-159. 1995.

7. Environmental Tobacco Smoke

Wagner, J.; Sullivan, D.P.; Faulkner, D.; Fisk, W.J.; Alevantis, L.E.; Dod, R.L.; Gundel, L.A.; Waldman, J.M. "Environmental tobacco smoke leakage from smoking rooms." *Journal of Occupational and Environmental Hygiene*, Volume 1, Pages 110-118. 2004. LBNL-51010.

Chan, W.R.; Price, P. N.; Gadgil, A.; Nazaroff, W.; Loosmore, G.; Sugiyama, G. "Modeling shelter-in-place including sorption on indoor surfaces." *Proceedings of the 84th American Meteorological Society Annual Meeting*, Seattle, WA, American Meteorological Society, Boston, MA. 2004. LBNL-53987.

Sohn, M.D.; Sextro, R.G.; Gadgil, A.J.; Daisey, J.M. "Responding to Sudden Pollutant Releases in Office Buildings: 1. Framework and Analysis Tools." *Indoor Air*, Volume 13, Pages 267-276. 2003. LBNL-47446.

Klepeis, N.E.; Apte, M.G.; Gundel, L.A.; Sextro, R.G.; Nazaroff, W.W. "Determining size-specific emission factors for environmental tobacco smoke particles." *Aerosol Science & Technology*, Volume 37, Pages 780-790. 2003. LBNL-51049.

Webb, A.M.; Nazaroff, W.W.; B.C. Singer. "Effect of gaseous ammonia on nicotine sorption." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 3, Pages 512-517, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50879.

Wagner, J.; Sullivan, D.P.; Faulkner, D.; Gundel, L.A.; Fisk, W.J.; Alevantis, L.E.; Waldman, J.M. "Measurements And Modeling Of Environmental Tobacco Smoke Leakage From A Simulated Smoking Room." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 2, Pages 121-126, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49785.

Singer, B.C.; Hodgson, A.T.; Nazaroff, W.W. "Effect of sorption on exposures to organic gases from environmental tobacco smoke (ETS)." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 2, Pages 138-143, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49576.

Nazaroff, W.W.; B.C. Singer. "Inhalation of hazardous air pollutants from environmental tobacco smoke in US residences." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 2, Pages 477-482, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50878.

Klepeis, N.E.; W.W. Nazaroff. "Characterizing size-specific ETS particle emissions." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 2, Pages 162-167, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-50938.

Apte, M.G.; Gundel, L.A.; Dod, R.; Chang, G.M.; Sextro, R. G. "A pilot study of the behavior of gas- and particle-phase ETS tracers in residences." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 2, Pages 500-505, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49585.

Klepeis, N.E.; Apte, M G.; Gundel, L A.; Nazaroff, W.W.; Sextro. R G. "Characterizing ETS Emissions from Cigars: Chamber Measurements of Nicotine, Particle Mass, and Particle Size." *Proceedings of the Indoor Air '99 Conference*, Edinburgh, Scotland, Volume 2, Pages 903-908, Construction Research Communications, Ltd., London. 1999. LBNL-43840.

Apte, M.G.; Gundel, L.A.; Singer, B.C.; Sullivan, D.P.; Sextro, R.G. "Indoor Transport of ETS Particles And Tracers." *Proceedings of the Indoor Air '99 Conference*, Edinburgh, Scotland, Volume 2, Pages 965-970, Construction Research Communications, Ltd., London. 1999. LBNL-43841.

Van Loy, M. D.; Nazaroff, W. W.; Daisey, J. M. "Nicotine as a Marker for Environmental Tobacco Smoke: Implications of Sorption on Indoor Surface Materials." *Journal of Air and Waste Management Association*, Volume 48, Pages 959-968. 1998. LBNL-42363.

Van Loy, M. D.; Lee, V. C.; Gundel, L. A.; Daisey, J. M.; Sextro, R. G.; Nazaroff, W. W. "Dynamic behavior of semi-volatile organic compounds in indoor air: 1. Nicotine in a stainless steel chamber." *Environmental Science and Technology*, Volume 31, Pages 2554-2561. 1997. LBNL-42674.

Van Loy, M. D.; Nazaroff, W. W.; Daisey, J. M. "Sorptive interactions of gas-phase environmental tobacco smoke components with carpet, Paper No. 97-MP3.05." Proceedings of the Air & Waste Management Association's 90th Annual Meeting & Exhibition, Toronto, Ontario, Canada, Air and Waste Management Association, Pittsburgh, PA. 1997.

Gundel, L.A.; Hansen, A.D.A. "Real-time measurement of environmental tobacco smoke by ultraviolet absorption." Proceedings of the Sixteenth Annual Conference of the American Association for Aerosol Research, October 13-17, 1997, Denver, CO, Pages 419, American Association for Aerosol Research, Cincinnati, OH. 1997.

Daisey, J. M.; Mahanama, K. R. R.; Hodgson, A. T. "Toxic volatile organic compounds in simulated environmental tobacco smoke: Emission factors for exposure assessment." *Exposure Analysis and Environmental Epidemiology*, Volume 8, Pages 313-334. 1997.

Daisey, J. M.; Nazaroff, W. W. "Implications of nicotine sorption on indoor surfaces on its use as a marker for environmental tobacco smoke." Proceedings of the A&WMA/EPA Symposium: Engineering Solutions to IAQ Problems, Research Triangle Park, NC, Air and Waste Management Association, Pittsburgh, PA. 1997.

Van Loy, M. D.; Nazaroff, W. W.; Lee, V. C.; Gundel, L. A.; Sextro, R. G.; Daisey, J. M. "Investigation of the fate of nicotine in a stainless-steel chamber." Proceedings of the 89th Annual Meeting of the Air and Waste Management Association, Nashville, TN, Air and Management Association, Pittsburgh, PA. 1996.

Mahanama, K. R. R.; Daisey, J. M. "Volatile N-nitrosamines in Environmental Tobacco Smoke: Sampling, Analysis, Emission Factors and Indoor Air Exposures." *Environmental Science and Technology*, Volume 30, Pages 1477-1484. 1996.

Wampler, D. A.; Miller-Leiden, S.; Nazaroff, W. W.; Litvak, A.; Mahanama, K. R. R.; Nematollahi, A.; Gadgil, A. J. "Effectiveness of Smokeless Ashtrays." *Journal of Air and Waste Management Association*, Volume 45, Pages 494-500. 1995. LBNL-39492.

Hodgson, A.T.; Daisey, J.M.; Alevantis, L.E.; Mahanama, K.R.R.; Ten Brinke, J. "Use of Volatile Tracers to Determine the Contribution of Environmental Tobacco Smoke to Concentrations of Volatile Organic Compounds in Smoking Environments." *Environmental International*, Volume 22, Pages 295-307. 1995. LBL-37376.

8. Exposure and Risk Assessment

Lobscheid, A.B.; McKone, T.E. "Constraining uncertainties about the sources and magnitude of polycyclic aromatic hydrocarbon (PAH) levels in ambient air: the State of Minnesota as a case study." *Atmospheric Environment*, Volume 38, Pages 5501-5515. 2004. LBNL-54473.

Marshall, J. "Exposure to Motor Vehicle Emissions: An Intake Fraction Approach, Master's Thesis." 2002. LBNL-51854.

Lorenzetti, D.M. "Predicting Indoor Pollutant Concentrations, and Applications to Air Quality Management." Proceedings of the Joint WHO-JRC-ECA Workshop on the Role of Human Exposure Assessment in Air Quality Management, Bonn, Germany. 2002. LBNL-51582.

Sohn, Michael D.; Thomas E. McKone; Mark L. Rigas; Jerry N. Blancato; Frederick W. Power. "Reconstructing exposure scenarios using dose biomarkers: An application of Bayesian uncertainty analysis." 2001. LBNL-51256.

8.1. Exposure and Health Effects

Sohn, M.D.; TE McKone; JN Blancato. "Reconstructing Population Exposures from Dose Biomarkers: Inhalation of Trichloroethylene (TCE) as a Case Study." *Journal of Exposure Analysis and Environmental Epidemiology*, Volume 14, Pages 204-213. 2004. LBNL-50588.

Russell, M.; Goth-Goldstein, R.; Apte, M.G.; Fisk, W.J. "Methods to determine the size distribution of airborne rhinovirus." Accepted for publication in *Indoor Air*. 2004. LBNL-54916.

Marshall, J.; McKone T.E.; Nazaroff, W. "Inhalation of primary motor vehicle emissions: Effects of urban population and land area." Accepted for publication in *Atmospheric Environment*. 2004. LBNL-55458.

MacLeod, Matthew. "Overall multi-media persistence as an indicator of potential for population-level intake of environmental contaminants." *Environmental Toxicology and Chemistry*, Volume 23, Pages 2465-2472. 2004. LBNL-53245.

MacLeod, M.J.; Bennet, D.H.; Perem, M.; Maddalena, R.L.; McKone, T.E.; Mackay, D. "Dependence of intake fraction on release location in a multi-media framework: A case study of four contaminants in North America." Accepted for publication in *Journal of Industrial Ecology*. 2004. LBNL-52369.

Maddalena, R.L.; McKone, T.E.; Sohn, M.D. "Standardized Approach for Developing Probabilistic Exposure Factor Distributions." *Risk Analysis*, Volume 24, Pages 1185-1199. 2003. LBNL-52203.

Maddalena, R.L.; McKone, T.E. "Is there a "forest filter effect" for organic pollutants?" *Stochastic Environmental Research and Risk Assessment*, Volume 17, Pages 231-234. 2003. LBNL-51882.

MacLeod, M.J. "On the influence of forests on the overall fate of semivolatile organic contaminants." *Stochastic Environmental Research and Risk Assessment*, Volume 17, Pages 256-259. 2003. LBNL-52156.

Erdmann, C.A.; Satariano, W.A.; Chen, Y.Q. "Traditional risk factor study (TRiFS): Preliminary report on risk factor prevalence and population attributable fraction estimates for breast cancer in Marin County, California." 2003. LBNL-51905.

Erdmann, C.A.; Farren, G.; Baltzell, K.; Chew, T.; Clarkson, C.; Fleshman, R.; Leary, C.; Mizroch, M.; Orenstein, F.; Russell, M.L.; Souders-Mason, V.; Wrensch, M. "Breast Cancer and Personal Environmental Risk Factors in Marin County – Pilot Study." 2003. LBNL-52484.

Russell, M.L.; Goth-Goldstein, R.; Apte, M.G.; Fisk, W.J. "Method for measuring the size distribution of airborne rhinovirus." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 40-45, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49574.

Pang, Y.; Gundel, L.A.; Larson, T.; Finn, D.; Liu, L.J. Sally; Claiborn, C.S. "Development and evaluation of a personal particulate organic and mass sampler." *Environmental Science and Technology*, Volume 36, Pages 5205-5210. 2002. LBNL-50850.

- Holman, H.Y.; Goth-Goldstein, R.; Aston, D.; Mao, Y.; Kengsoontra, J. "Evaluation of gastrointestinal solubilization of petroleum hydrocarbon residues in soil using an in vitro physiologically-based model." *Environmental Science & Technology*, Volume 36, Pages 1281-1286. 2002. LBNL-48401.
- Goth-Goldstein, R.; Russell, M.L.; Parimoo, B.; Weyand, E.H. "7H-Benzo[c]fluorene DNA adduct formation in different human cells in culture." 2002. LBNL-50479.
- Fischer, M.; Littlejohn D.; Lunden, M.; Gundel, L.A.; Dod, R.; Brown N.J. "An instrument for automated simultaneous measurements of ammonia and nitric acid in indoor and outdoor air." 2002. LBNL-51005.
- De Martinis, B.S.; Okamoto, R.A.; Kado, N.Y.; Gundel, L.A.; Carvalho, L.R.F. "Polycyclic aromatic hydrocarbons in a bioassay-directed fractionated extract of PM10 collected in Sao Paulo, Brazil." *Atmospheric Environment*, Volume 36, Pages 307-314. 2002. LBNL-48453.
- Castorina, R.; Bradman, A.; McKone, T.E. "Assessing cumulative organophosphate pesticide exposure and risk among pregnant women living in an agricultural community." *Environmental Health Perspectives*, Volume 111, Pages 1640-1648. 2002. LBNL-51334.
- Bodnar, A.B.; Maddalena, R.L.; McKone, T.E. "Addressing locally grown foods in cumulative exposure assessments." *Journal of Exposure Analysis and Environmental Epidemiology*, Volume 14, Pages 60-73. 2002. LBNL-50378.
- Bennett, D.H.; Furtaw, E.J.; McKone, T.E. "A fugacity-based indoor residential pesticide fate model." *Proceedings of the Indoor Air 2002 Conference*, Monterey, CA, Volume 1, Pages 261-266, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-53458.
- McKone, T.E.; E.G. Hertwich. "The Human Toxicity Potential and a Strategy for Evaluating Model Performance in Life-Cycle Impact Assessment." *International Journal of Life-Cycle Assessment*, Volume 6, Pages 106-109. 2001. LBNL-48254.
- Klepeis, N.E.; Nelson, W.C.; Ott, W.R.; Robinson, J.P.; Tsang, A.M.; Switzer, P.; Behar, J.V.; Hern, S.C.; Engelmann, W.H. "The National Human Activity Pattern Survey (NHAPS): A resource for assessing exposure to environmental pollutants." *Journal of Exposure Analysis and Environmental Epidemiology*, Volume 11, Pages 231-252. 2001. LBNL-47713.
- McKone, T.E.; Hammond, S.K. "Managing the health impacts of waste incineration." *Environmental Science & Technology*, Volume 34, Pages 380A-387A. 2000. LBNL-46084.
- McKone, T.E. "The rise of exposure assessment among the risk sciences: an evaluation through case studies." *Inhalation Toxicology*, Volume 11, Pages 101-112. 1999. LBNL-43717.
- Maddalena, R. L.; T.E. McKone; A. Bodnar; J. Jacobson. "Development and Evaluation of Probability Density Functions for a Set of Human Exposure Factors." 1999. LBNL-43604.
- Goth-Goldstein, R.; Holman, H.-Y.; Russell, M. "In vitro model for intestinal uptake of benzo(a)pyrene." 1999. LBNL-43752.
- Bennett, D.H.; W.E. Kastenberg; T.E. McKone. "A multimedia, multiple pathway exposure assessment of atrazine: the impact of age differentiated exposure including joint uncertainty and variability." *Reliability Engineering and System Safety*, Volume 63, Pages 185-198. 1999. LBNL-43716.
- Daisey, J.M. "A Report on the Workshop on Improving Exposure Analysis for DOE Sites September 1996, San Francisco, CA." *Journal of Exposure Analysis and Environmental Epidemiology*, Volume 8, Pages 3-7. 1998.
- McKone, T.E.; K.P. Brand; C. Shan. "Environmental health risk assessment for tritium releases at the national tritium labeling facility at Lawrence Berkeley National Laboratory." 1997. LBL-37760.
- McKone, T.E.; R.L. Maddalena. "Soil Contamination and Human Exposure: A Comprehensive Assessment Framework." *International Journal of Toxicology*, Volume 16, Pages 319-337. 1997.

- Dowdy, D.L; McKone, T.E. "Predicting the Bioconcentration of Organic Chemicals from Soil or Air into Plants Using Quantitative Structure Activity Relationships." *Environmental Toxicology and Chemistry*, Volume 16, Pages 2448-2456. 1997.
- Apte, M.G. "Population based exposure assessment methodology for carbon monoxide: Development of a Carbon Monoxide Passive Sampler and Occupational Dosimeter." 1997. LBNL-40838.
- Watanabe, K.; Bois, F. "Interspecies extrapolation of physiological pharmacokinetic parameter distributions." *Risk Analysis*, Volume 16, Pages 741-754. 1996.
- Tozer, T. N.; Bois, F.; Hauck, W. H.; Chen, M.L.; Williams, R. "Absorption rate vs. exposure: which is more useful for bioequivalence testing." *Pharmaceutical Research*, Volume 13, Pages 453-456. 1996.
- McKone, T. E. "Overview of the risk analysis approach and terminology: The merging of science, judgment, and values," *Food Control*, 7(2): 69-76." *Food Control*, Volume 7, Pages 69-76. 1996.
- Lane, D.; Gundel, L. "Gas and particle sampling of airborne polycyclic aromatic compounds." *Polycyclic Aromatic Compounds*, Volume 9, Pages 67-73. 1996. LBL-37984.
- Gundel, L.A.; Apte, M.G.; Goldstein, M.; Traynor, G.W.; Oum, M.; Helfman, W.B.; Chang, G.M. "Development and commercialization of a carbon monoxide occupational dosimeter: Progress Report to ERLTR." 1996. LBNL-39846.
- Gelman, A.; Bois, F.; Jiang, J. "Physiological pharmacokinetic analysis using population modeling and informative prior distributions." *Journal of the American Statistical Association*, Volume 91, Pages 1400-1412. 1996.
- Dowdy, D.; McKone, T. E.; Hsieh, D. P. H. "The Use of the Molecular Connectivity Index for Estimating Biotransfer Factors." *Environmental Science & Technology*, Volume 30, Pages 984-989. 1996.
- Bois, F.; Jackson, E.; Pekari, K.; Smith, M. "Population toxicokinetics of benzene. Environmental Health Perspectives." *Environmental Health Perspectives*, Volume Suppl 6, Pages 1405-1411. 1996.
- Bois, F.; Gelman, A.; Jiang, J.; Maszle, D.; Zeise, L.; Alexeef, G. "Population toxicokinetics of tetrachloroethylene." *Archives of Toxicology*, Volume 70, Pages 347-355. 1996.
- Hauck, W.; Hyslop, T.; Anderson, S.; Bois, F.; Tozer, T. "Statistical and regulatory considerations for multiple measures in bioequivalence testing." *Clinical Research and Regulatory Affairs*, Volume 12, Pages 249-265. 1995.
- Bois, F.; Krowech, G.; Zeise, L. "Human interindividual variability in metabolism and risk: the example of 4-aminobiphenyl." *Risk Analysis*, Volume 15, Pages 205-213. 1995.

8.2. Pollutant Fate and Transport Modeling

- Toose, L.; Woodfine, D.G.; MacLeod, M.; Mackay, D.; Gouin, J. "BETR-World: A geographically explicit model of chemical fate - application to transport of α -HCH to the Arctic." *Environmental Pollution*, Volume 128, Pages 223-240. 2004. LBNL-54148 .
- Prevedouros, K.; MacLeod, M.; Jones, K.C.; Sweetman, A.J. "Modelling the fate of persistent organic pollutants in Europe: Parameterisation of a gridded distribution model." *Environmental Pollution*, Volume 128, Pages 251-261. 2004. LBNL-54147 .
- McKone, T.E.; Deshpande, A.W. "Can Fuzzy Logic Bring Complex Problems into Focus? Modeling Imprecise Factors in Environmental Policy." 2004. LBNL-55457 .
- MacLeod, M.; Riley, W.J.; McKone, T. E. "Coupling global contaminant mass balance models with climate models: Transport to the Arctic as a case study." To be submitted to *Environmental Science & Technology*. 2004. LBNL-54847 .
- MacLeod, M.; McKone, T. E. "Comparing estimates of persistence and long-range transport potential among multimedia models." To be submitted to *Environmental Science & Technology*. 2004. LBNL-54848 .

MacLeod, M.; McKone, T. E. "Identifying POP-like behavior in screening assessments of organic chemicals." To be submitted to Environmental Science & Technology, 2004. 2004. LBNL-54849.

MacLeod, M.; mckone T.E.; Hunt, J.R.; Mackay, D. "A mercury mass balance for the San Francisco Bay area: Development and application of a regional multi-species fugacity model." To be submitted to Chemosphere 2004. 2004. LBNL-54845.

MacLeod, M.; Mackay, D. "Modeling transport and deposition of contaminants to ecosystems of concern: A case study for the Laurentian Great Lakes." Environmental Pollution, Volume 128, Pages 241-250. 2004. LBNL-54149 .

MacLeod, M.J.; McKone,T.E.; Foster, K.L.; Maddalena, R.L.; Parkerton, T.F.; Mackay, D. "Applications of contaminant fate and bioaccumulation models in assessing ecological risks of chemicals: a case study for gasoline hydrocarbons." To be submitted to Environmental Science & Technology. 2004. LBNL-54630 .

Fenner, K.; MacLeod, M.; Stroebe, M.; Beyer, A.; Scheringer, M. "Relative importance of model and parameter uncertainty in models used for prediction of persistence and long-range transport potential of chemical pollutants." Proceedings of the International Environmental Modelling and Software Society Conference. 2004. LBNL-54846 .

Scheringer, M.; McKone T.E. "Is there a "forest filter effect" for airborne organic pollutants? A SERRA journal forum." Stochastic Environmental Research and Risk Assessment, Volume 17, Pages 229-230. 2003. LBNL-53456 .

McKone, T.E.; Bennett, D.H. "Chemical-specific representation of air-soil exchange and soil penetration in regional multimedia models." Environmental Science and Technology, Volume 37, Pages 3123-3132. 2003. LBNL-46693 .

McKone, T.E.; MacLeod, M.J. "Tracking Multiple Pathways of Human Exposure to Persistent Multimedia Pollutants: Regional, Continental, and Global Scale Models." Annual Review of Environment and Resources, Volume 28, Pages 11. 2003. LBNL-52193 .

Marshall, J.; Riley, W.J.; McKone T.E.; Nazaroff, W.W. "Intake fraction of primary pollutants: Motor vehicle emissions in the South Coast Air Basin." Atmospheric Environment, Volume 37, Pages 3455-3468. 2003. LBNL-53457 .

McKone, T.E.; Thatcher, T.L.; Fisk, W.J.; Sextro, R.G.; Sohn, M.D.; Delp, W.W.; Riley, W.J. "Factors affecting the concentration of outdoor particles indoors: existing data and data needs." Proceedings of the Indoor Air 2002 Conference, Monterey, CA, Volume 1, Pages 176-181, Indoor Air 2002, Santa Cruz, CA. 2002. LBNL-49570 .

Maddalena, R.l.; McKone, T.E.; Kado, N.Y. "Exposure chamber measurements of mass transfer and partitioning at the plant/air interface." Environmental Science & Technology, Volume 36, Pages 3577-3585. 2002. LBNL-50569 .

Bennett, D. H.; Mckone, T.E.; Evans, J.S.; Nazaroff, W.W.; Margni, M.D.; Jolliet, O.; Smith, K.R. "Defining intake fraction." Environmental Science & Technology, Volume 36, Pages 207A-211A, I. 2002. LBNL-50501 .

Bennett, D.H.; Margni, M.D.; McKone, T.E.; Jolliet, O. "Intake Fraction for Multimedia Pollutants: A Tool for Life Cycle Analysis and Comparative Risk Assessment." Risk Analysis, Volume 22, Pages 903-916. 2002. LBNL-47253.

McKone, T.E.; A.B. Bodnar; E.G. Hertwich. "Development and evaluation of state-specific landscape data sets for multimedia source-to-dose models." 2001. LBNL-43722 .

MacLeod, M.; D.G. Woodfine; D. Mackay; T.E. McKone; D.H. Bennett; R.L. Maddalena. "BETR North America: A regionally segmented multimedia contaminant fate model for North America." Environmental Science & Pollution Research, Volume 8, Pages 156-163. 2001. LBNL-50571.

Bennett, D.H.; Scheringer, M.; McKone, T.E.; Hungerbühler, K. "Predicting Long Range Transport: A Systematic Evaluation of Two Multimedia Transport Models." Environmental Science & Technology, Volume 35, Pages 1181-1189. 2001. LBNL-45690.

Bennett, D.H.; McKone, T.E.; Kastenberg, W.E.; Schwalbe, C.A. "Characteristic time, characteristic travel distance, and population based dose in a multimedia environment: A case study." Human & Ecological Risk Assessment: Theory and Practice, Volume Chapter 11, Pages 619-643, John Wiley and Sons. 2001. LBNL-45815.

van de Meent, D.; T.E. McKone; Parkerton, T.; Matthies, M.; Scheringer, M.; Wania, F.; Purdy, R; Bennett, D.H. "Persistence and Transport Potential of Chemicals In A Multimedia Environment." Chapter 5 in the book, Persistence and Long-Range Transport of Organic Chemicals in the Environment:Guidelines and Criteria for Evaluation and Assessment, SETAC Press, Pensacola, FL. 2000. LBNL-43719.

Scheringer, M.; Bennett, D.H.; McKone, T. E.; Hugerbuhler, K. "Relationship between Persistence and Spatial Range of Environmental Chemicals. ACS Symposium Series 773." Persistent, Bioaccumulative, Toxic Chemicals II Assessment and New Chemicals, American Chemical Society, Washington, DC. 2000. LBNL-44343.

Maddalena, R.L.; McKone, T. E.; Hsieh, D.P.H.; Geng, S. "Influential Parameter Classification in Probabilistic Multimedia Models." Stochastic Environmental Research and Risk Assessment, Volume 15, Pages 1-17. 2000. LBNL-43335.

Bennett, D.H. "Population based dose models for multimedia chemicals with the potential for long range transport, May 2000." 2000. LBNL-45879.

Bennett, D.H.; T. E. McKone; W. E. Kastenberg. "CART screening level analysis of characteristic time – a case study. ACS Symposium Series 773." Persistent, Bioaccumulative, Toxic Chemicals II Assessment and New Chemicals, American Chemical Society, Washington, DC. 2000. LBNL-43721.

Bennett, D.H.; T.E. McKone; W.E. Kastenberg. "Evaluating multimedia chemical persistence in a multimedia environment: A CART analysis." Environmental Toxicology and Chemistry, Volume 19, Pages 810-819. 2000. LBNL-42897.

Klecka, G.M.; D. Mackay; R.S. Boethling; T.E. McKone. "Evaluation of persistence and long-range transport of organic chemicals in the environment: summary of a SETAC Pellston workshop." Environmental Toxicology and Chemistry, Volume 18. 1999. LBNL-43720.

Hertwich, E.G.; T.E. McKone; W. S. Pease. "Parameter uncertainty and variability in evaluative fate and exposure models." Risk Analysis, Volume 19, Pages 1193-1204. 1999. LBNL-43718 .

McKone, T.E.; A.B. Bodnar. "Improved Landfill Simulations Based on the CalTOX Framework." 1998. LBNL-41929.

Bennett, D.H.; James, A. L.; McKone, T. E.; Oldenburg, C. M. "On uncertainty in remediation analysis: variance propagation for subsurface transport to exposure modeling." Reliability Engineering and System Safety, Volume 62. 1998. LBNL-41335.

Bennett, D.H.; T.E. McKone; M. Matthies; W.E. Kastenberg. "General formulation of characteristic travel distance for semivolatile chemicals in a multimedia environment." Environmental Science and Technology, Volume 32, Pages 4023-4030. 1998. LBNL-43715.

9. Other

Koomey, J.; Craig, P.; Gadgil, A.J.; Lorenzetti, D. "Improving Forecasting: A plea for historical retrospectives." The Energy Journal, Volume 24, Pages 75-92. 2003. LBNL-52448 .